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THE OFFICIAL

# ARMY INFORMATION DIGEST

U.S. ARMY MAGAZINE

OCTOBER 1959



# ARMY INFORMATION DIGEST



THE OFFICIAL MAGAZINE OF  
THE DEPARTMENT OF THE ARMY

The mission of ARMY INFORMATION DIGEST is to keep personnel of the Army aware of trends and developments of professional concern. The Digest is published under supervision of the Army Chief of Information to provide timely and authoritative information on policies, plans, operations, and technical developments of the Department of the Army to the Active Army, Army National Guard, and Army Reserve. It also serves as a vehicle for timely expression of the views of the Secretary of the Army and the Chief of Staff and assists in the achievement of information objectives of the Army.

Manuscripts on subjects of general interest to Army personnel are invited. Direct communication is authorized to: The Editor, ARMY INFORMATION DIGEST, Cameron Station, Alexandria, Va.

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**MORAL STRENGTH** of character is a dynamic force—a prime ingredient in the esprit of the modern army. How the Character Guidance Program fosters awareness of individual moral responsibility and generates pride in soldierly performance of duty is described in this issue.

## COMMAND LINE

### Army Views On Vital Issues

#### ON THE BATTLEFIELD OF IDEAS

"We cannot buy true peace with military power. We can buy only the precious opportunity to work for peace. Nor can a stable world order be built through the processes of diplomacy. It cannot be produced by the application of science and technology. True peace can be brought about only by the growth and fruition of ideals in the hearts of men. The spiritual and intellectual field is the real battleground upon which the future of the world will ultimately be decided."

Secretary of the Army Wilber M. Brucker,  
at Army War College graduation,  
Carlisle Barracks, Pennsylvania, 18 June 1959.

#### ON UNITY IN MILITARY OPERATIONS

"All military operations today are highly complex, and they show every indication of growing more so. As in the past, it is impossible to conceive of any type of modern military operation which can be effectively carried out—and successfully concluded—solely by forces operating in one single element, or employing one single weapons system. Invariably, the special skills, capabilities, and orientations of all of our military services will be involved. Truly, as President Eisenhower has stated, 'Separate ground, sea, and air warfare is gone forever.'"

General Lyman L. Lemnitzer,  
at the Industry Missile and Space Conference,  
Detroit, Michigan, 17 June 1959.

#### ON GETTING THE JOB DONE

"We must learn to use what we have—not what we're promised. We must learn to live within our means and achieve our objectives without too much distraction with promises. We have the doctrine, the organization and equipment to get the essentials of the job done. Marking time for highly specialized and over-expensive equipment is unrealistic and tantamount to arming ourselves with a blueprint. Anyone can do the job with maximum facilities. A good man and good staff can do it with the minimum essentials."

General Bruce C. Clarke, Commanding General,  
U. S. Continental Army Command,  
at Army Command and General Staff College,  
Fort Leavenworth, Kansas, 19 June 1959.

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THE OFFICIAL

**ARMY**  
INFORMATION  
**DIGEST**

U. S. ARMY MAGAZINE

OCTOBER 1959  
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Leadership and dedication  
moral principle are enhanced  
by the Army



# Character

**I**N ESSENCE the Army's Character Guidance Program is designed to make free men worthy of their freedom. It reinforces the statement by outstanding military leaders that "The really ultimate weapon is man"—not naked man with all his passions, foibles, and weaknesses unharnessed, but integrated and total man, emotionally stable, morally responsible, and buttressed in his patriotism with all the moral virtues.

To assist the American soldier to face his responsibilities as a social unit in the Army and in his country, the Character Guidance Program makes a dynamic effort to

challenge men who are already mature, to consider newer and deeper meanings in life. No man is ever too old to face up to such continuing and important requisites as moral integrity, unselfishness, honesty, self discipline, self sacrifice.

Most of us resist any attempt to change our attitudes. The Character Guidance Program is not meant to change men as much as it is an attempt to solidify their aims and formalize their ideals.

Recognizing to what thinness some of our life-giving principles have been eroded, the sages of our age frequently voice alarm lest our civilization meet destruction. Wal-



# Guidance Program

**Chaplain (Major General) Frank A. Tobey**

ter Lippmann recently put it well: "What is left of our civilization will not be maintained, what has been wrecked will not be restored, by imagining that some new political gadget can be invented, some new political formula improvised which will save it. Our civilization can be maintained and restored only by remembering and rediscovering the truths, and by re-establishing the Virtuous Habits on which it was founded. There is no use looking into the blank future for some new and fancy revelation of what man needs in order to live. The revelation has been made. By it man conquered the jungle about him and the barbarian within him."

Responsibility, Work, Sacrifice—these were elemental in that revelation and they were illumed as the transcendent light of Truth and Justice played across them; they were made graceful through Love and exulted in Hope. These were things that made for freedom. These were the virtues that made men worthy.

AFTER World War I, it was recommended that problems of character training and education for

morale be made the responsibility of some branch within the Army itself. In July 1940, a Morale Division was set up emphasizing athletics and recreation and Army news service. These were taken over by other organizations during World War II. A void, however, remained in the moral sphere. When the Universal Military Training Experimental Unit was still in the "blueprint" stage, the Chaplain was given the responsibility of filling the moral void which existed, by presenting specific moral instruction to trainees at Fort Knox.

The entire program was formalized in Circular 231 (3 August 1948), entitled Character Guidance, and turned over to the commander for implementation. UMT emphasis on Moral Training proved so effective that in January 1957, a similar type of training was instituted throughout the Army, and the Chief of Chaplains was made responsible for preparing the instructional material.

Objectives of this program, as set forth in AR 600-30, call for establishing an understanding of the dignity of man; awareness of indi-



Formal meetings such as that led by Chaplain Joseph F. Sheehan at Fort Jackson are part of the Character Guidance Program.

vidual moral responsibilities; respect for authority; pride in the proper performance of duty; and for recognition of obligations and opportunities inherent in military service.

These objectives are the day-in, day-out concern of every command and every individual. A lecture or briefing is presented each month to bring into specific focus various facets which make up the strength of these objectives. Usually the chaplain is the instructor though other qualified persons may discuss the scheduled topic for the month. A text is presented for reference material, together with lesson plans, graphic training aids, transparencies, and open-end films. Posters re-

inforcing the moral truth emphasized each month soon will be available also.

While the program reaches everybody, not all instruction in the various phases is given on the same level to all personnel. Under provisions of the AR, the program is to be carried on by "group instruction and personal interview." This is not a purposeless ambiguity.

An instructional period in the Army is usually an hour, but there is nothing in the AR which would preclude, for a special reason, a 10 or 15 minute briefing as group instruction or personal interview. This, it is hoped, will retain autonomy for the commander.

All recognize the difficulties in getting 100 percent attendance for any formation that would include all officers and senior non-coms. For such personnel, married and socially stable, to attend a full hour of instruction would be unrealistic. This problem can readily be solved by having the chaplain conduct a brief orientation for seniors and supervisors at a staff meeting, officers call, or any other assemblage chosen by the commander. Thus the command may fulfill the spirit of the AR and simultaneously keep abreast of the moral training the troops are receiving.



## CHAPLAIN (MAJOR GENERAL)

**FRANK A. TOBEY**

**Chief of Chaplains**

**Department of the Army**



Informal gatherings in barracks often take the place of classroom sessions, as this one at Fort Leonard Wood where Chaplain M. D. Blair sat down to discuss problems with a group of trainees.

The AR further recommends that Character Guidance Councils be established for junior officers and senior noncoms at company and battery level. Thus, in a psychologically sound approach, the commander places a prime responsibility on squad and section leaders. The Councils foster better leadership by intimately involving noncommissioned officers in the lives of their men.

There is always a danger, however, that the Character Guidance Councils could degenerate into mere reporting agencies. The aim is to keep them informal and to develop the interpersonal relationship of complete trust between command and troop. Questionnaires filled with favorable answers to impress a higher echelon could be

self-defeating. The intent of these councils will be served best by getting to the grass roots before the weeds can grow.

In a continuous study to evolve further means of making the program timely and practical, the U. S. Army Chaplain Board has made demonstration and evaluation tours throughout the United States and Europe.

To vitalize the moral issue and to serve as a continuous reminder of the topic for the month, a poster program is planned to complement the instructional material, with distribution down to Company/Battery level beginning in November. About that time also, a Character Guidance Manual offering staff guidance will be available to commanders and chaplains. All this is



On other occasions chaplains bring the program to soldiers training in the field, as Chaplain John D. Wilcox is doing at Fort Banks, Massachusetts.

being done to motivate and involve every echelon of command and to furnish a leadership tool.

IT is a truism that the Army will never be any better than the people who compose it. The modern Army with its complicated weapons and difficult leadership requirements must maintain a high level of personnel and use every means to keep them eager and dedicated. An essential deterrent against our enemy must remain the courageous heart, the right conscience, the clear head, the strong body fortified with the truth and obedient to the dictates of moral good.

The commander and his staff are dedicated and purposeful men. They are citizens of a democracy that exists because our Founding Fathers looked heavenward for guidance. The Fathers could avow, "We are endowed by our Creator with certain inalienable rights"; but they knew the word "Responsibility" as well as the more popular word "Opportunity." They loved freedom—but not at any price.

Our most obvious enemy has no such moral moorings. People who

are educated in terms of expediency cannot be expected to act in terms of principle. For survival we need a stronger, more dynamic ideology than theirs. Our generation, too, is set to earn its spurs.

The Character Guidance Program is the Army's response in action to those who do hold with authority, to those who do yearn for gratification in the proper performance of duty, to those who do believe in One Nation Under God.







# TRUST



# THY NEIGHBOR

**"Grass roots" support for the Chaplain program—**

## The Padre's Cadre

**Chaplain (Lieutenant Colonel) Harmon D. Moore**

**M**AINTEINING an adequate religious program is a problem that faces many military commanders in these days of enlarging communities and reduced personnel. At Fort Richardson, Alaska, the problem is well on its way to being solved in a very obvious and practical manner—Make use of the special talents of the chapel congregation.

Military installations include groups of people with the most varied backgrounds imaginable. They come from all walks of life, all corners of the United States and represent all possible

facets of the American scene. They diverge in political beliefs and religious persuasions; and they run the educational gamut from individuals with advanced college degrees to others with less formal education. Many have lived in one or more foreign countries and know something of foreign languages and customs.

When dependents residing in the military community are also brought into the picture, you have a total group that can produce a specialist or expert for almost any endeavor or activity. The wealth of background they offer provides a veritable mine of energy and talent.

In the Fort Richardson setting, the long-established concept of providing

**CHAPLAIN (LIEUTENANT COLONEL)  
HARMON D. MOORE is Post Chaplain, Fort  
Richardson, Alaska.**



During an enlisted men's dinner program at Fellowship Hall, Fort Richardson Chapel, choir sings to congregation.



the Chaplain with an enlisted assistant and a civilian employee to accomplish all the necessary clerical and administrative duties required some readjustment. One fact upset the pattern. The number of dependents and civilians living on or near the post had increased manifold. This meant that the post Chaplain's responsibility to "promote religion and morality in the Army" was greatly enlarged, of necessity, and had to be directed toward the total community.

The question thus was posed—How to cope with this expanding community and its increased spiritual and moral needs, without a corresponding growth of the hand to feed it? The Fort Richardson answer has been to single out those interested men and women of the congregation who will devote part of their time and energies towards chapel activities. Such a nucleus exists among the many mothers and fathers who are Sunday School teachers, departmental superintendents, ushers, and aides. An effective means of coordinating and continuing their functions, however, was missing from the picture.

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# FAIR PLAY



*Yours to enjoy!*

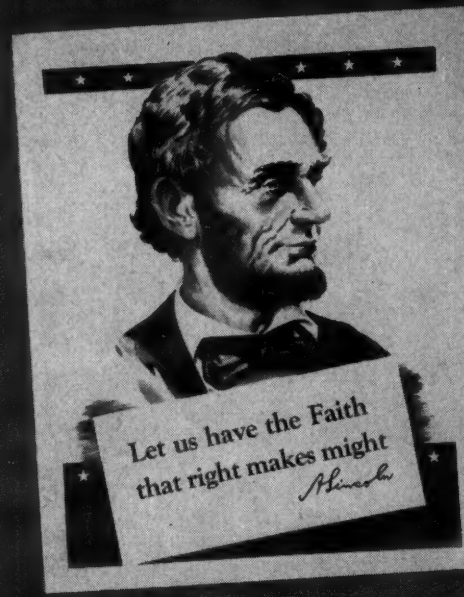
Drawing on the knowledge of a working organization already in existence at Fort Monroe, Virginia, a workable solution soon began to take form. Commanders of units and other members of the existing congregation met with the Chaplain, and from this meeting came the formation of a "Lay Directorate"—The Padre's Cadre—to take over part of the administrative burden of providing a complete and well-rounded religious program for the military community.

THE first step after forming the Lay Directorate was to define the various functions that must be covered and then group them accordingly by committees. The next step was to select the chairmen of these committees.

It was a simple matter to single out senior members of the congregation who were regular church-goers and active in the chapel center programs. As examples, the post transportation officer volunteered to accept chairmanship of the Transportation Committee, the Assistant Army Engineer accepted the Building and Grounds Committee responsibility, the Comptroller took the

"With the Cross of Jesus, Carried on Before," as expressed in old hymn, epitomizes choir and flag bearers departing after a chapel service.





Finance Committee work. Each chairman then prepared a detailed statement of the functions of his committee. Based on the complexity and number of his functions, he determined how many committee members were needed and immediately recruited capable personnel.

It soon became apparent that the many functions to be performed by various committees were interlocking. The mission of clearly delineating responsibilities was given to a Committee on Organization and Functions. This Committee and the Committee on Special Programs operates directly under the Lay Directorate. Thus annual programs are planned by the Special Program Committee, reviewed by the Lay Directorate, and farmed-out to the appropriate committees who then make the detailed plans for the coming year.

The various committees are given "mission-type" instructions with full freedom to accomplish their job. For example, the functions of the Ushering Committee are: to select ushers for Chapel worship or special services, to be responsible for instruction and to train all ushers and supervise intro-

ductions for Chapel receptions. The Publicity Committee prepares and releases information on programs and events, advertises special events, services or schools, and publishes all Chapel brochures, booklets or printed materials. In this manner all principal functions are effectively arranged by the Lay Directorate acting in their capacities as individuals or committee groups, without monopolizing the attention of the Chaplain.

Under the Lay Directorate system each person who serves in the program, whether as a committee member or a teacher, is a vital cog in the overall machinery of the chapel program. The human, material, spiritual resources so necessary for the operation of a dynamic religious program—already in existence on every military installation—are singled out, utilized and coordinated.

The program has its roots in the conviction that the majority of people are seriously concerned with their own and their children's welfare. If they are properly motivated, selected and trained, they can be counted on to give loyal and enthusiastic support.



IN operation, the Lay Directorate approach corresponds to the General Staff concept of military organization. The Chaplain becomes the commander; the Lay Directorate is his chief of staff; the Special Programs and Organization and Functions Committees act as the General Staff; and the operating committees become the administrative and special staff.

Does this work effectively? For Holy Week, 1959, the post Chaplain suggested a series of programs that would call upon most of the major units for participation and representation. A luncheon meeting of the Lay Directorate and its committees was called. The suggested program was explained and the ball was passed to the Special Programs Committee.

This Committee in turn called on the Attendance and Unit Sponsored Services Committee to arrange for each of the major units on post to sponsor one evening service and provide an

usher and guidon bearer for the Easter Sunrise Service. The Ushering Committee instructed the one-time ushers in their duties; the Music Committee arranged to have the band out for the Sunrise service; the Publicity Committee spread the word through various news media and post publications. Coffee and cookies were provided by the sponsoring units following evening services. The Easter Sunrise Service was held in the post theater, at 0600 followed by regular services. Attendance was record-breaking.

Success of any endeavor of this type depends equally upon the full support of the Commander, the Chaplain and post personnel. Since it was organized in February 1959, the Lay Directorate has proven its worth in filling a need in the religious life of Fort Richardson. It may not be the answer to every commander's and chaplain's problem, but it is certainly an approach that warrants consideration.

### **Circuit Riding by 'Copter—**

## **The Chaplain Reaches the Troops**

A MODERN twist has been given to the tradition of the circuit riding ministry of bygone days as chaplains in the U. S. Seventh Army, Germany, utilize helicopters instead of horse and buggy or mules. Two of them, First Lieutenant Edward M. Mueller and Louis A. Foley, use the modern means of transportation to visit personnel of the 160th Signal Group assigned to isolated radio relay stations perched on remote hilltops in southern Germany.

As the means of locomotion have changed, so too have the purposes of the modern ministers and priests serving with the Army. They look after the personal welfare of soldiers, exploring the morale and general outlook of men at the tiny stations—some of them with as few as five men on duty. They inquire into entertainment, food and household facilities. Frequently they perform missions such as arranging for marriage details or clearing up other personal problems.

After typical visit, Chaplains Foley and Mueller bid goodbye to Sgt. Henry Gonzalez.



**Intensive research efforts insure**

# Engineer Support



# for the Army Combat Team

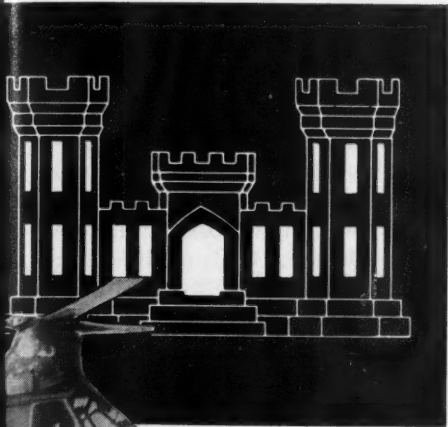
adapted to enhance the power of its huge military machine.

Soviet advances, particularly in the fields of military engineering and the development of engineer equipment, constitute a direct challenge to the U. S. Army. As a part of the Army combat team, the Corps of Engineers has a vital role in meeting that challenge. Fundamentally its role is unchanged from the traditional combat mission of the Corps—facilitating the advance of friendly troops and impeding the progress of the enemy. Only the tools, techniques and tactics are changing.

As the principal research and development agency of the Corps of Engineers, the U. S. Army Research and Development Laboratories (ERDL) is oriented toward bold, long-range, forward-looking approaches aimed at providing war-winning types of equipment to the soldiers of the future Army.

Briefly stated, its mission is to provide the best tools and techniques that can be devised. This means development of rugged, mobile Engineer equipment capable of supporting fast-moving battle groups of the Pentomic divisions in wide-ranging, dispersed operations required on the modern battlefield.

**COLONEL A. H. DAVIDSON, JR.**, *Corps of Engineers, is Director, U. S. Army Research and Development Laboratories, Fort Belvoir, Virginia.*



**Colonel A. H. Davidson, Jr.**

**T**HE years since 1945 have witnessed many changes in the world political lineup and the balance of industrial power. Our former World War II comrades-in-arms, the Soviets, have assembled a powerful coalition of Communist-dominated nations that endangers the liberty of the Free World. Russia has become an industrial giant. More than that, it has become a world leader in scientific research, and this knowledge has been

## **Engineer Support for the Army Combat Team**

Located at Fort Belvoir, Virginia, 15 miles south of Washington, D. C., the Laboratories are predominantly a civilian organization. About 1400 civilian employees—including scientists, engineers and technicians—and 250 officers and enlisted men comprise the working force. The organization is under the command of Major General Gerald E. Galloway, commanding Fort Belvoir and the Engineer Center. The Director, assisted by a staff directorate of five officers and four civilians, supervises operations and carries out Engineer research and development policies of the Chief of Engineers.

### **Research Areas**

ERDL's mission in support of our ground forces can be divided into two broad categories—mobility for the Army, and protection for the individual soldier. Currently, it is engaged in studies in 24 major research and development projects:

- Bridging and Stream Crossing
- Buildings and Utilities
- Concealment and Deception
- Firefighting
- Petroleum Storage and Distribution Equipment
- Electrical Power
- Infrared Research
- Night Vision
- Land Navigation
- Mine Warfare
- Mine Warfare Research
- Fortifications, Obstacles and Demolitions
- Water Supply and Sanitation
- Construction and Maintenance Equipment
- Industrial Engines
- Liquid and Compressed Gases
- Map Compilation
- Map Reproduction
- Mapping and Geodetic Research
- Surveying and Geodesy
- Combat Mapping and Geodetic Systems
- Materials Research
- Nuclear Weapons Effects
- Cold Region Research

TO the soldier who does his fighting on the ground, probably the most important questions involving Engineer support are: "What are the Engineers doing to help win the battle?" and "How are the Engineers providing better protection?"

The answer to the first query is, of course, that a highly mobile Army, capable of hitting hard and dispersing quickly, will have a tremendous edge over a slow-moving force. Engineer research facilitates the Army's mobility in four major areas—bridging and stream crossing, construction and construction equipment, night operations, and mine warfare. Considerable progress has been made, and is continuing to be made, in all of these areas.

For example, the new "scissors" bridge, a 60-foot aluminum alloy structure which is carried and hydraulically launched by a standard M-48 tank, is already in the hands of troops—a truly mobile bridge.

In addition, however, ERDL is seeking bridges that will be mobile enough to move ahead of and support the fastest moving battle groups of the Pentomic divisions. Our engineers are thinking in the most revolutionary terms, and we are optimistic about some of these unconventional devices that range from a "flying carpet" to a plastic foam bridge.

Floating bridges such as those now in use make excellent targets, especially for modern weapons like guided missiles. Consequently, we are seeking amphibious assault ferries that can move quickly overland to a crossing site where a few men can speedily hook up the units for ferrying heavy equipment across streams. Until satisfactory assault



ferries can be developed, we will have to utilize existing bridges and rafts.

Already developed is an aluminum raft that can be assembled in 15 minutes and carry a 12-ton load. Bridge building techniques and bridge erection aids have also been developed to accelerate bridge construction, and helicopters are being used to deliver equipment.

New pneumatic and plastic assault boats, lightweight but durable and capable of carrying 15 fully armed infantrymen across a stream, have been developed and will soon be available to troops.

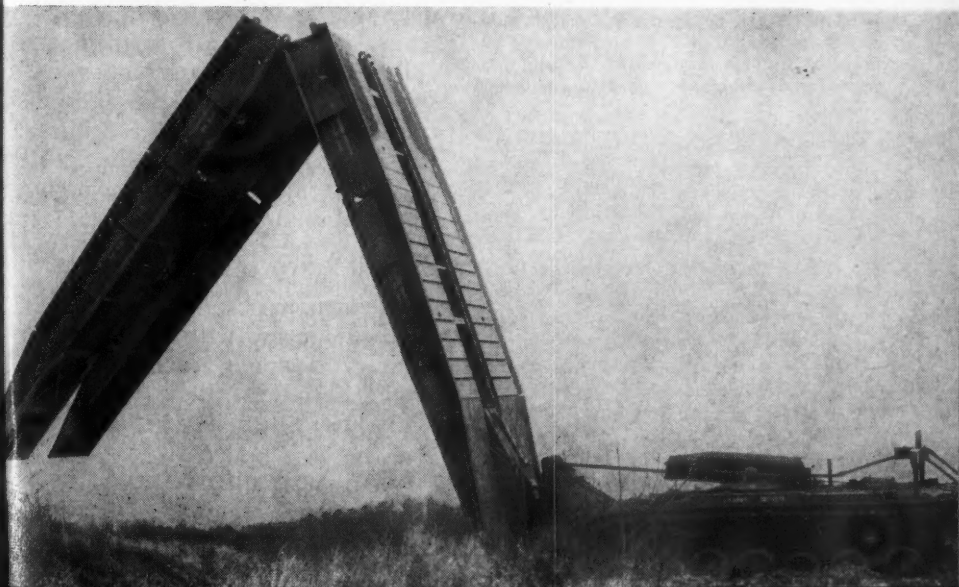
The necessity of quickly moving Army ground forces into a battle area presupposes massive airborne operations. Success of such an operation depends on several factors, including the capability of the Engineers to prepare expedient airstrips for heavy assault aircraft within hours of an initial landing. To accomplish this, the Engineers

have developed a complete airborne family of construction equipment including bulldozers, cranes, scrapers, air compressors and dump trucks. These can be air-dropped or landed in assault aircraft. (See "The Engineers Go Airborne," April 1957 DIGEST.)

Our Engineers are also striving for equipment that will meet the demand for speed, dispersion and mobility that confronts the military engineer. Unlike commercial equipment, which continues to become bigger and heavier to move dirt more cheaply, military machines will be smaller and lighter and designed for increased mobility and reduced maintenance needs.

Under development are two revolutionary multi-purpose tractors. One is the BAT (Ballastable All-purpose Tractor.) Rubber-tired, with front and rear sections detachable to permit the insertion of different body units such as a cargo body, liquid transporter or a crane,

As an aid in keeping troops mobile, this 60-foot scissors bridge made of aluminum can be carried and hydraulically launched over terrain obstacles by a tank.





Protection for troops on battlefield of future will be provided by mobile ditching machine which is capable of scooping out trenches or ditches at rate of more than 20 feet a minute.



Mine fields can be sown rapidly with automatic machine, above. A revolutionary all-purpose airborne earthmover, below, illustrates trend in lighter but powerful equipment.



this machine, when ballasted with dirt, can perform dozing and prime moving operations. It can eject its ballast and perform as a dump truck or it can be adapted to transport supplies and personnel. Its basic sections can be carried by helicopter. The BAT is now undergoing initial tests. Its companion ballastable all-purpose crawler is in the design stage.

### Mobility Despite Darkness

**HISTORY** records that most of the great battles were fought in daylight. Armies began their attacks at dawn. When darkness fell, they retired to their respective camps, lighted their campfires—often within sight of each other—and retired for the night. Gradually, night operations were increased, and in modern warfare they have become more important than ever. Darkness offers concealment and the opportunity to disperse.

As a result of research and development efforts, an entire new family of infrared devices will enable our forces to fight, move and work in total darkness. Newly developed is an improved sniperscope and some other versatile devices, both near and far infrared. The "metascope," a hand-sized instrument, will enable troops to read maps and signs in complete blackout and detect enemy near infrared devices. Binoculars, attached to the steel helmet, are handy devices for night construction and night driving.

The sniperscope, originally developed in World War II for use by riflemen, has been improved and adapted for use with a variety of Infantry weapons, including the 106mm recoilless rifle.

Engineer researchers are working

in the field of thermal radiation detection—the reflection of men or objects upon a screen by the heat waves they generate. In the works, too, but a long way from testing, is a night vision device that gets its reflected light from the stars or sky glow. (See "Night Viewing Devices," January 1959 DIGEST.)

### Mine Warfare

THE Engineer mission—of facilitating the advance of friendly forces and impeding the enemy—is neatly epitomized in Engineer mine warfare operations. It is the Engineers' responsibility to breach safe paths through enemy mine fields for the advance of our forces, and to create mine fields as an effective barrier that hinders the advance of the enemy. Our mine fields force him into narrow corridors through which he must launch his attack, cause casualties in materiel and personnel and lower his morale.

With mine fields expected to play an important part in any future war, experts at ERDL have developed an automatic machine that arms and plants mines at a high rate of speed. Mounted on a rubber-tired bogie, it is towed by crawler tractor in operation, by truck over roads. Also available are a jeep-mounted earth auger and a dozer-mounted scoop to expedite planting of individual mines.

For breaching paths through enemy mine fields, ERDL has evolved an improvement on the World War II "snake." The 400-foot long device is pushed into the mine-field by a tank and detonated, causing nearby land mines to explode harmlessly. The new device has specially shaped charges which are detonated by firing a machine gun from the

tank into a bullet-sensitive fuse.

Mine detectors are also being improved for the painstaking task of searching out individual or "nuisance" mines.

### Improved Mapping Methods

STILL other phases of the ERDL program that contribute to the support of Army ground forces are its studies in mapping and geodesy. Now under feasibility study is an instrument that will automatically plot topographic information on map manuscripts. An automatic tracing theodolite—a surveying equipment capable of tracking moving targets—should be operationally available in 1962.

Under design is an electrostatic printing machine, suitable for printing photomaps and multicolored topographic line maps in a motorized mapping van. Other mapmaking aids include new geodimeter models, a motorized map reproduction train, a motorized photomapping train, a precision stereoplotter permitting creation of three-dimensional terrain views, a new system for the storage and rapid distribution of target maps, and a new target location system now under development.

ERDL scientists have tested and



## **Engineer Support for the Army Combat Team**

standardized the Tellurometer, an electronic survey instrument which provides a rapid and economical method of precise ground measurement of distances up to about 40 miles. It can be used in any kind of weather, day or night.

Among developments that will provide speedy protection for the soldier in the field are the high-speed ditcher and the earth-auger for building field fortifications. The ditcher, or entrenching machine, is quickly transported. Particularly adapted to construction of all types of military excavations, it can dig one and two-man foxholes in one minute, heavy machine gun emplacements in  $3\frac{1}{2}$  minutes. In straight trench digging it can dig a trench 20 feet long, four feet deep and two feet wide in one minute.

Moreover, it is truck-mounted and can travel at a speed of 35 miles an hour. The ditcher is scheduled for procurement in 1959.

For protection of equipment operators in radioactively contaminated areas, ERDL has developed special lead cabs, equipped with two-way radio and a filtered air supply. Work is also underway on a radio-controlled tractor which can be used in radioactivated areas at distances up to 15 miles.

### **Missile Support**

ENGINEER research also plays a key role on the missile team. At ERDL, mobile liquid oxygen plants have been developed to supply the large amounts of this fuel oxidizer for the propellant systems in the Army's mighty Redstone missile.

Air-droppable crane that can lift more than its weight of 8 tons also can be used with clamshell, dragline or shovel attachments.







Truck-mounted water purifier which handles 3,000 gallons per hour, removing radioactive or other contaminants, has been standardized by Engineers.

Liquid oxygen is unstable and cannot be stored for long periods, so it has been necessary to operate generating plants close to the launching sites. Mobile plants with daily capacities of 5 to 20 tons are already in use with Redstone companies. Capability of producing five tons of liquid nitrogen daily, as a coolant for the Redstone, has been added to the 20-ton plant. Currently, efforts are concentrated on improving the plant's mobility.

New weapons delivery systems demand a constant flow of electric power. Generator sets for missiles must not only be portable, but must have an electrical output of the highest quality and reliability; moreover, they must be capable of operation and maintenance by field personnel. ERDL has under development a whole family of light-

weight, compact generators ranging from a 50-pound 3-kilowatt set that can be carried on a man's back to a 1500-kilowatt set that is air-transportable. An ERDL-developed 60-kilowatt precise power generator is in use with the Redstone.

In addition, new air-conditioned vans, suitable for housing the delicate electronic equipment required for the missile systems, special fire fighting equipment, mobile carbon dioxide plants, camouflage, construction and infrared equipment also have been developed in support of the Army missile systems.

Still another problem involves the location of the missile launcher in relation to the target. Major advances in the rapid and accurate location of targets within the tactical area are being achieved through the use of newly developed night



Radio-controlled robot tractor can operate in dangerous areas while "driver" guides it from as far as fifteen miles away.

photographic equipment, electronic and optical instruments. Geodimeters, the Tellurometer and helicopters, together with radar, are making it possible to accelerate mapping and geodesy.

WHILE emphasis at ERDL has been placed on mobility, troop protection and missile support, other areas are not being neglected. For example, we are developing an entire new family of small gasoline-powered military engines in the  $\frac{1}{2}$  to 20 horsepower range. Six engines in the family, with a high percentage of interchangeable parts, will replace the 78 different makes

and models now in use. The number of spare parts will be reduced from the thousands to a few hundred, thus increasing efficiency and cutting logistical and maintenance problems to a minimum. Three of the engines— $\frac{1}{2}$ ,  $1\frac{1}{2}$  and 3 horsepower—are already in production.

In any warfare involving atomic weapons, water purification becomes a matter of grave concern. To meet this problem, ERDL has developed a family of water purifiers called "Erdlators," ranging from airborne 600-gallon per hour capacity plant to a semi-permanent plant capable of purifying 10,000 gallons per hour. All are capable

Precise ground measurements can be made day or night electronically by Tellurometer, below. Right, minefields can be cleared by "snake" which explodes land mines.



of purifying radioactively contaminated water.

### Scope of Studies

RESEARCH and development at ERDL extends into other areas such as the development of electronic equipment for crevasse detection in the Arctic; development of mobile maintenance shops; "wanigans" or sled-borne shelters for personnel traveling over the ice cap; prefabricated aircraft hangars and other buildings; flexible pipelines and hasty bulk storage containers for POL; distillation of sea water; materials and packaging;

and studies of the effects of explosions on certain types of structures.

The demands that will be made upon the research and development program at ERDL may be expected to mount in the years to come. As new missions in the scientific and engineering fields come up, advanced technology will be applied to meet the accelerated pace of a possible nuclear war. In this team endeavor, ERDL will do its part, contributing to the continuing task of keeping the United States Army a forward-looking, progressive instrument of ground combat operations.

**How to earn somewhat less than \$18,000 a year**



**Captain Martin Blumenson, USAR**

**A**LMOST everyone can talk. But not everyone knows how to make a good speech.

Lots of people drive cars. But that doesn't make them professional chauffeurs.

Let's face it. Knowing how to put passably good English on paper doesn't necessarily mean that you can write articles for publication.

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**CAPTAIN MARTIN BLUMENSON, USAR,** Historian in the Office of the Chief of Military History, recently completed a tour of active duty with Magazine and Book Branch, Office of the Chief of Information.

But let's admit it too. There is a book that tells how at least one person makes \$18,000 a year as a writer. Stories like this are intriguing. Tempting. It seems so easy. All you do is get an idea, put it on paper, send it off to an editor. Then you can sit back and plan how you're going to spend the check that should be coming in with the return mail.

Actually, it's only a beautiful dream. If everyone could write for publication as naturally as he breathes, eats, or sleeps, magazines



# e-Lancing

## THE MILITARY JOURNALS

would not pay for good publishable pieces.

The reason they pay—and some pay well—is because writing is hard work. It demands training, practice, persistence. It is a skilled job, and not everyone can do it.

If you have ached to be a writer and see your name in print, perhaps make less than \$18,000 a year, here are some suggestions that may help.

Why the message? Because the U. S. Army encourages its personnel to write for publication. Army people writing about the Army contribute to effective public relations.

Maybe you can participate in that program.

**The idea.** The core of every article is an idea. An idea starts with a thought, which may come to mind

as the result of a random experience, an event, a personal inclination. A thought developed by reflection may become an idea.

You may have a “how” idea—how something can be done better, faster, or not at all. It may be a “why”—why something is done or ought not to be done. There are millions of good ideas, although you might have to do some experimenting to find the right ones for yourself.

All right, you have an idea. You must also want to communicate that idea to someone. Try it out—on your buddy, on your wife, on your commanding officer. If someone is interested in hearing about it, then you can begin to consider whether lots of people might be interested. If you decide in the affirmative, you are almost ready for the next step.

Consider just how much do you know about this idea of yours? Are you an expert in the field? If not, are you willing to spend time in the library to become an expert? For unless you can be informative and entertaining, you might just as well stop now.

Before continuing, let's clear one more hurdle. Have you something

## ***Free-Lancing the Military Journals***

legitimate to say? Or do you have a gripe that might better be taken to the Chaplain?

**The potential reader.** Who do you think is going to be interested in your idea? Men, women, or children? All men? Only men in the Army? Artillerymen? Those who operate a Fire Direction Center? Then it has to be written for them.

Take another example. Would all officers be interested in this idea? Maybe only line officers—or junior officers? Have you something to say to helicopter pilots? To tankers? To scientists? Or to Army wives?

The point is, you have to have a prospective reader in mind. You can write for him—the collective him—in much the same way you can talk to him. If your idea is about your work or about something with which you are quite

familiar, you will probably be able to write at least an authoritative and interesting article that will appeal to him. Also, you can be pretty sure of the magazine he reads. And of course, that is your target.

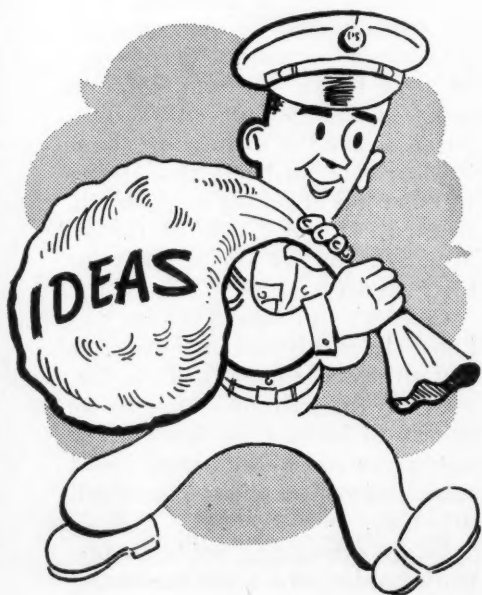
**The presentation.** With your idea and your potential reader well in mind, you are ready to figure out how you're going to get your idea down on paper so that your potential reader will understand it.

First, you have to get him interested. What you have to do is buttonhole a stranger and say, "Listen, I have something important, hilarious, shocking (take your pick) to tell you." Then you have to make him listen.

The technique is the same for writing—only you can't use your hands, you can't change the inflection of your voice, you can't pause (except figuratively) for dramatic effect. And while a listener might not be rude and walk away in the middle of your pitch, a reader is like a televiewer—neither has any compunction about changing the channel or flipping the page.

Maybe your title will lure the potential reader. "How I Found that Pot of Gold at the End of the Rainbow" might do it. The pot of gold could turn out to be the satisfaction and the reward of keeping your Quartermaster truck in tip-top shape. "The Ultimate Secret Weapon" might be a way of getting into an idea on leadership. "How I Earned my Purple Heart" is not so good as "How to Earn a Purple Heart the Hard Way."

Your first sentence also has to catch the reader's eye—and interest. Sometimes it's better to wait until you have expressed your idea, that



is, written your piece. When it's all finished, you may discover an easy way to lead your reader into perusing your words by writing the first sentence or paragraph.

As for the idea itself, be as direct and as succinct as you can. Use short sentences, and use the same words you do in conversation. Don't be a phony.

Now, this seems rather simple. But go ahead and try; you'll have to find out for yourself. You might possibly wind up with a manuscript. But you're far from finished.

**The aging process.** Like good wine, an article should be aged in the wood. The manuscript should be put in a dark place, a desk drawer for example, and allowed to mellow. What happens while the manuscript remains out of sight is a process that takes place in your head. Your subconscious intelligence works on it. This, I might say, is the easiest part of the whole thing. You just forget about your idea and let your subconscious do the work.

But you'll have to be firm. You'll have to resist the temptation of taking out the manuscript and admiring it in its pristine beauty. For that's what it is, a primitive effort. And in this state, it is not ready for submission to an editor.

It takes anywhere from a week to a month for the aging process to be complete. And when you finally take the manuscript out of the drawer, there's more work ahead.

**The re-write.** Never look at your manuscript lovingly. It is not to be cherished. On the contrary, be downright suspicious. You're about to rip it apart.

You start by trying to see it as a piece written by your worst enemy, and you know *he* couldn't do anything good. If you have let the manuscript mellow long enough, you will be able to do this. If it looks wonderful to you, put it away for more aging.

When you can bring a jaundiced eye to your masterpiece, read it slowly and keep telling yourself that you're the original man from Missouri. Strike out every word you don't need, every sentence that's superfluous, every phrase that rings with redundancy. Be tough, be cruel, be brutal. Strip your idea to its essentials.

Finished? Ask yourself whether your piece makes sense. Does it say anything? Does it convince you? Is it still a good idea?

Be frank. Don't kid yourself. Maybe you ought to throw it away.



## **Free-Lancing the Military Journals**

This may save you lots of heart-ache.

If you decide otherwise, look at the weak spots you have discovered, the paragraphs that don't follow logically, the places that need a phrase or a sentence or even a paragraph of transition or of explanation. Go ahead and fix them up.

Maybe your whole approach was wrong. Maybe it sounds phony even though your original idea seems good. Go ahead and do it over.

When you have finished, put it away again for a week to a month. Read it again and hack at it some more. You might have to do this several times. Months may go by.

Discouraged? You ought to be. But maybe eventually the piece won't look too bad. It should never look good—but maybe not bad. In that case, you're almost ready for the next step.

It's a good idea at this point to show it to someone, a friend. Not a friend who owes you money, but someone who doesn't have to flatter you. Ask him to read it. And listen to what he says. You may not want to take his advice—and this is all right. But you may discover you have left out a vital piece of information, not on purpose, but maybe because you know too much about your subject. And without this piece of information your article may not make any sense.

On the other hand, your friend might even like your piece.

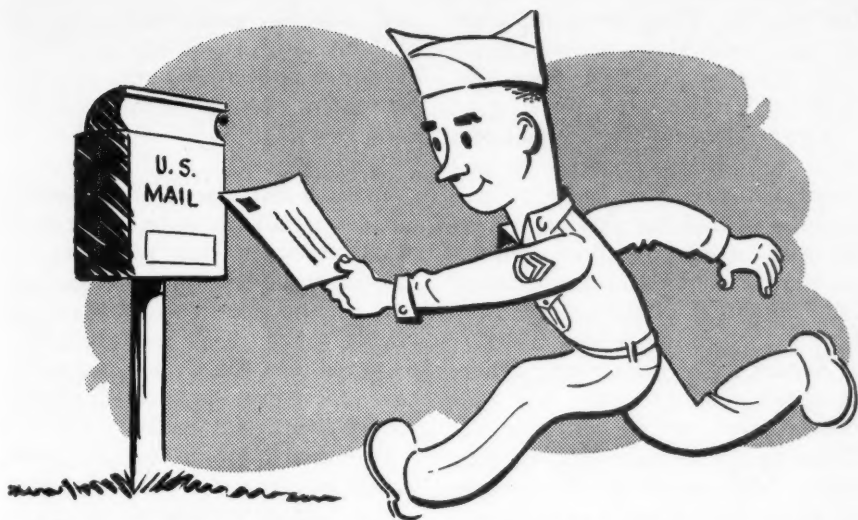
Now, you are probably ready to take the next punishment.

**Format.** A neat package helps. And there are rules about packaging your article.

Your manuscript should be typed double-spaced with ample margins on bond paper. Use only one side.







Each page should be numbered and identified with a short title and your last name at top left, page number at top right. If you're a worry wart, make a carbon copy so you'll have it if your original gets lost in the mail. This doesn't happen often, but it just might happen to you.

It's OK to hold your pages together with a paper clip. But don't staple or pin them. If your article is only a few pages, fold it twice and put it in a large white envelope. If your manuscript is bulky, don't fold; get a nice big roomy manila envelope for mailing.

Before you mail off your manuscript, wait. You have another job.

**Clearance.** All Army personnel in uniform and Army civilian employees must have their manuscripts on military subjects, including fictional material, cleared for publication. Write a letter to the Chief of Information, Department of the Army, Washington 25, D. C., asking for clearance, and enclose your manuscript. When it is cleared

—that is, determined as containing no security, propriety or national policy violation—it will be returned to you.

Now all you have to do is sell it.

**Placement.** Placing your article with a magazine is the most critical part of the whole operation. Unless, of course, you're writing for the fun of it.

The most important thing about placing an article is being honest with yourself. Where does your article fit? We all know where we would like it to appear. But that isn't the same as an honest appraisal of who might take it. It isn't going to be easy to sell an idea on the latest development in combat boots to the *Saturday Evening Post*. Nor is *Reader's Digest* likely to be intrigued by a method of getting a track back on a tank.

Be honest. It's all right to be hopeful. But be practical at the same time.

For the Army writer, it would seem obvious that magazines oriented toward the Army reader are

## Free-Lancing the Military Journals

the best bet. There are quite a few of them, too. Many of them don't pay, but this will help keep you under \$18,000.

The following table indicates what the military journals are primarily interested in, rates of pay and the like. Some may use an occasional article on more general subjects. The best way of finding out the nature of the market is to look through several back issues.

As you try to match your article to magazines, you may find that one or two, perhaps as many as three, might be interested in your piece. Make a list and keep score of where and when you send out your article and when it returns. This will keep you from sending it to the same place twice.

Before you send it, write a letter to the editor. Tell him in one sentence, repeat, one sentence what your article is all about. If you think this might not convince him to take it, go ahead and tell him in another well-chosen sentence, why you are submitting it to him—in other words why he ought to grab it. Finish up by saying something like "Length is about 2,500 words." Except for a "sincerely yours" and your name, that's all.

If you want to be sure of hearing from him send along a stamped, self-addressed envelope. The editor has no obligation to return your article unless you provide him with this.

By this time, you can't wait to get rid of your article. So mail it.

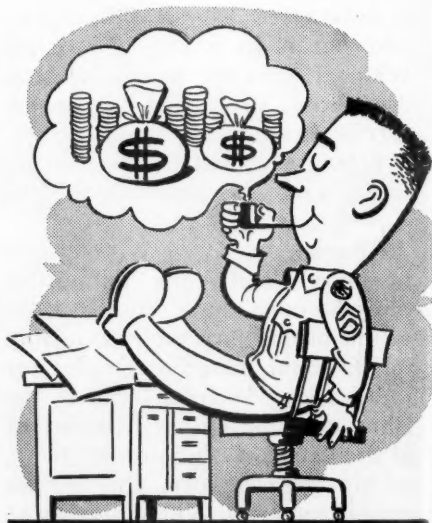
You ought to hear from the magazine in about two weeks to a month. If your manuscript hasn't come back after a month, you have a good chance of acceptance. After

two months, your manuscript is probably lost. Write a polite letter of inquiry anyway and keep hoping. You might possibly be surprised by good news.

**Famous last words.** Remember, an idea is not the same as an article. Remember that you have to inform and entertain. Remember that writing is not easy. And above all, be savvy; don't send your 75-page master's thesis to a magazine that has never printed anything longer than 2,000 words.

One final blow—if you place one article of every two you write, you are in fact an expert.

**Post Script.** Just in case you're wondering how I happened to write this article, I'll tell you. I figure I have a subject here that has mass appeal. The way I see it, just about everyone can earn less than \$18,000 a year as a writer. You can, too. Good luck.



Publication	Frequency of Publication	Circulation in Thousands	Payment	Preferred Word Length of Articles	Illustrations With Articles	Fiction Accepted	Publisher, Editorial Address	Type of Articles Desired, Comment
<b>ARMED FORCES CHEMICAL JOURNAL</b>	Bi-M	4	None	2,500 5,000	yes	no	Armed Forces Chemical Assn., 2025 Eye St., N.W. Washington 6, D. C.	Application of chemical science to military.
<b>ARMED FORCES MANAGEMENT</b>	M	22	None	1,500 2,000	yes	no	Professional Services Publishing Co., 1001 Vermont Ave., Washington, D. C.	Civilian and military management concepts. Publishes only one article per author per year.
<b>ARMOR</b>	Bi-M	7	None	2,000 6,000	yes	no	U. S. Armor Assn., 1757 K St., N. W. Washington 6, D. C.	Uses articles on armor, tactics, leadership, training aids, history.
<b>ARMY</b>	M	59	Up to 5¢ per word on publication	up to 3,000	yes	no	Assn. of U. S. Army; 1529 18th St., N. W., Washington 6, D. C.	Almost any topic of Army interest is considered. An excellent market for the military writer.
<b>ARMY INFORMATION DIGEST</b>	M	90	None	2,000 4,000	yes	no	Official publication of U. S. Army; Cameron Station, Alexandria, Va.	Articles of wide Army interest. Publication distributed on a troop-information basis. Available to public through Government Printing Office.
<b>ARMY-NAVY-AIR FORCE JOURNAL</b>	W	28	None	up to 1,500	no	no	Army, Navy, Air Force Journal, Inc., 1710 Connecticut Ave., N. W., Washington 9, D. C.	Will publish news-type articles of interest to the military.
<b>ARMY-NAVY-AIR FORCE REGISTER</b>	W	15	\$10-15 per article	300 1,000	yes	no	Army, Navy, Air Force Register, Inc., 2020 M St., N. W., Washington 6, D. C.	Uses articles on current military events. Must have news-style format.
<b>ARMY TIMES</b>	W	177	Varies	up to 1,500	yes	no	Army Times, 2020 M St., N. W., Washington 6, D. C.	Wants military news feature articles. Four editions (domestic, European, Pacific, Reserve-Natl. Guard, Veterans.) Also publishes <i>American Weekend</i> in Europe.
<b>INFANTRY</b>	Q	13	about 2¢ per word	up to 3,000	no	no	Official publication of The Infantry School, Fort Benning, Ga.	Articles on infantry doctrine, organization, techniques, supplemental instructional material, military lessons, methods of instruction.

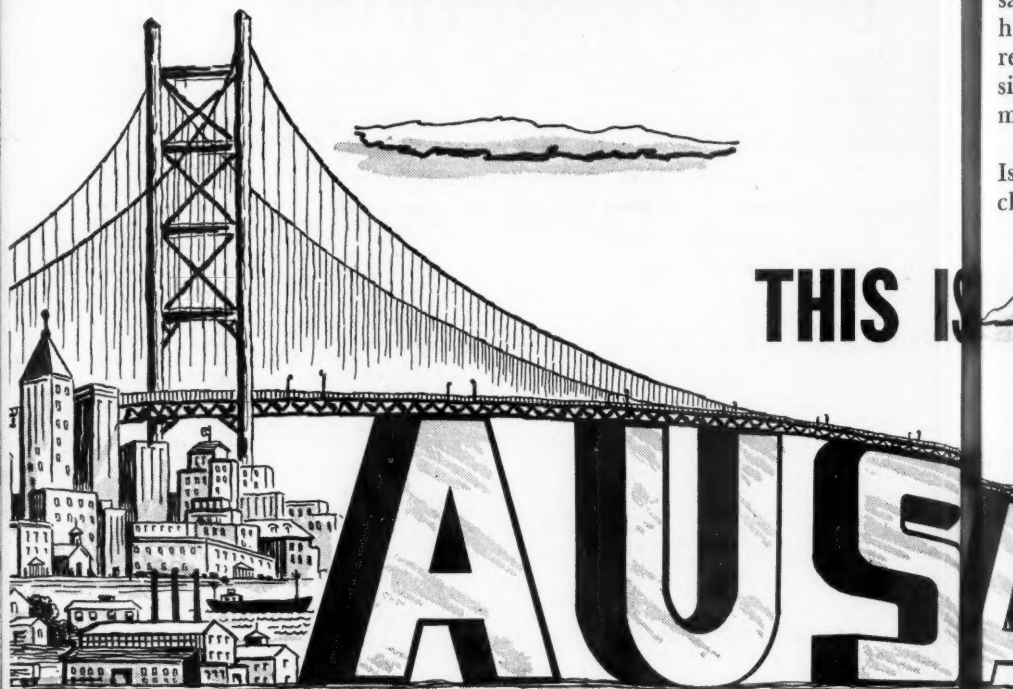
## Free-Lancing the Military Journals

Publication	Frequency of Publication	Circulation in Thousands	Payment	Preferred Word Length of Articles	Illustrations With Articles	Fiction Accepted	Publisher, Editorial Address	Type of Articles Desired, Comment
MILITARY AFFAIRS	Q	2	None	1,800 6,000	no	no	American Military Institute, 511 11th St., N. W., Washington, D. C.	Development of American military history and such topics as logistics, organization, military government.
MILITARY AUTOMATION	Bi-M	30	3 books given per article printed	2,000	yes	no	Instruments Publishing Co., 845 Ridge Ave., Pittsburgh 12, Pa.	Uses articles on all types of military electronics, automation servo-systems, technical circuits.
MILITARY ELECTRONICS	M	20	\$25 to \$40 per printed page upon acceptance	1,000 2,000	yes	no	Electronics Periodicals, Inc., 2775 S. Moreland Blvd., Cleveland 20, Ohio	Electronic developments of interest to defense-project engineers and managers.
THE MILITARY ENGINEER	Bi-M	27	About \$15 per printed page	2,000	yes	no	Society of American Military Engineers, 808 Mills Bldg., Washington 6, D. C.	Uses articles on military-engineering topics dealing primarily with national defense.
MILITARY MEDICINE	M	7	None except for one prize story each year.	2,500	yes	no	Assn. of Military Surgeons of the U. S., Suite 718, 1726 Eye St., N. W., Washington 6, D. C.	Any subject matter pertaining to medicine, either military or civilian.
MILITARY REVIEW	M	17	Active Duty Military, \$25 per article; monthly awards of \$100 or \$50 plus annual award of \$350 from among monthly first place winners; other authors minimum \$25.	2,500 4,000	no	no	Official publication of the Command and General Staff College, U. S. Army, Fort Leavenworth, Kansas	Also prints commercial English, Spanish and Portuguese language editions. Articles on tactics, strategy, all other matters of military significance. Emphasis on modern military thought, current Army doctrine, command and staff procedures of division and higher echelons.
MISSILES AND ROCKETS	W	24	Upon publication	2,000	yes	no	American Aviation Publications, Inc., 1001 Vermont Ave., N. W. Washington 5, D. C.	Articles on military and scientific development in rockets and missiles, components, training of personnel, manufacture.



Publication	Frequency of Publication	Circulation in Thousands	Payment	Preferred Word Length of Articles	Illustrations With Articles	Fiction Accepted	Publisher, Editorial Address	Type of Articles Desired, Comment
NATIONAL DEFENSE TRANSPORTATION JOURNAL	Bi-M	14	Up to \$50 per manuscript	2,500	yes	no	National Defense Transportation Assn., 1001 Connecticut Ave., N. W., Washington 6, D. C.	Articles on current thought in the transportation and logistics fields.
THE OFFICER	M	66	From \$25 to \$35 per article.	1,500 to 2,000	yes	no	Reserve Officers Assn., 2517 Connecticut Ave., N. W., Washington 8, D. C.	Uses articles about any subject in the military field, either active Army or Reserve.
ORDNANCE	Bi-M	44	Pays upon publication.	2,500	yes	no	American Ordnance Assn., 708 Mills Building, Washington 6, D. C.	News-style technical and scientific articles written for non-technical readers, on Armed Forces armament and industrial preparedness.
THE QUARTERMASTER REVIEW	Bi-M	12	Pays 1½¢ per word upon publication	2,000 to 2,500	yes	no	The Quartermaster Assn., 1026 17th St., N. W., Washington 6, D. C.	Uses articles dealing with any aspect of military supply.
THE RETIRED OFFICER	Bi-M	40	None				The Retired Officers Assn., 1616 Eye St., N. W., Washington 6, D. C.	Does not accept unsolicited manuscripts.
SIGNAL	M	10	Pays only on special arrangement	1,500 to 2,500	yes	no	Armed Forces Communications and Electronics Assn., 1624 Eye St., N. W., Washington 6, D. C.	Uses articles of broad scope on signal and communications matters, both military and civilian.
U. S. ARMED FORCES	M	30	None	2,000 to 4,000	no	no	Armed Forces Medical Publication Agency, 2300 Eye St., N. E., Washington, D. C.	Wants scientific and technical articles in the medical and health fields.
U. S. ARMY AVIATION DIGEST	M	6	None	1,500 to 2,500	yes	no	Official publication of the U. S. Army Aviation School, Fort Rucker, Alabama	Uses articles on any phase of Army Aviation.
U. S. LADY	M	30	Pays \$10 to \$40 per article upon publication	500 to 2,000	yes	yes	American Service Publishing Co., Inc., 1823 Jefferson Pl., N. W., Washington 6, D. C.	Likes articles of interest to service wives. Subjects on home economics, travel, personal experiences, child rearing in the service, good fiction, and humor.

**Building a bridge  
to public understanding and support—**



**Major General A. J. Drexel Biddle, PaNG  
President, Association of the U. S. Army**

**C**IVIC leaders, reservists and active Army members meeting to discuss current problems of national defense—

Engineers, industrialists and Army authorities gathering in a symposium to consider guided missiles—

An ROTC company receiving a briefing from an Army General Staff officer visiting their campus—

A film service bringing to industry and business groups movies on recent Army research and development advances—

Sustaining members receiving publications, news memoranda and organizational charts, to keep them fully informed on Army activities—

A defense information service answering questions of business firms—

A national professional military magazine going out to thousands of civilian readers—

**ALL THESE** and many more comprise the activities of the Association of the United States Army. They come to a climaxing focal

point in an annual meeting such as that just concluded in August in Washington, D. C., where thousands of visitors saw industrial exhibits, heard speakers of national repute, took part in panel discussions led by top-level civilian and military authorities.

Theme of the meeting was "What Is a Modern Army?" Speakers included Gen. Lyman L. Lemnitzer,

viewers better informed of the magnitude and intricacy, as well as the significance, of the problems confronting the Army in its quest for modernity—problems that affect the American public, its general welfare and its very safety.

The annual meeting is the climax of activities that continue throughout the year — activities which perform for the Army many things that individual members have found it extremely difficult to do for and by themselves. These activities have grown in size, scope and importance as the Association has increased its membership and extended its sphere of interest since its founding less than ten years ago. Actually the Association did not reach its present potential until 1956 when the first Annual Meeting set the pattern for future activities and growth.

THE Association is an independent, non-political, educational organization incorporated under the laws of the District of Columbia. Although its predecessors go back to the 1880's, the Association as such came into being in 1950 when the U. S. Infantry Association and the U. S. Field Artillery Association were merged. Not until 1955, however, when the U. S. Antiaircraft Association joined forces, did present activities become possible.

Today the Association membership is approaching the 60,000 mark. Its nation-wide Sustaining Membership Program brings industry and the Army together for constructive interchange of views. It gets down to the very grass roots of community life through its regional chapter program, to give the average American a clearer under-

Chief of Staff, Gen. George H. Decker, Vice Chief of Staff, General Bruce C. Clarke, Commanding General, U. S. Continental Army Command, Lt. Gen. Arthur G. Trudeau, Chief of Army Research and Development, Lt. Gen. Lewis B. Hershey, Ret., Director of Selective Service, The Honorable John J. Sparkman, U. S. Senator from Alabama, The Honorable Courtney Johnson, Assistant Secretary of the Army for Logistics, and The Honorable Wilber M. Brucker, Secretary of the Army, discussing "This Is a Modern Army."

National news media covered the meetings, and thus helped keep millions of readers, listeners and



## **This Is AUSA**

standing of the Army's problems and a better appreciation of its accomplishments. Its ROTC company program is designed to foster a mutual interest between the Army and the academic community. At present, there are 112 regional chapters and 58 ROTC companies.

Throughout the year, the Association conducts industrial symposiums. Currently 64 major industrial firms are participating in the Sustaining Membership Program, to improve communication and coordination between the Department of the Army and the Nation's industrial establishments. During recent years the Association has sponsored symposiums on guided missiles, Army Aviation, communications, electronics, and battlefield mobility at various installations. In panel discussions, Army experts in the fields of research and development, requirements and doctrine meet with prominent industrial leaders to discuss Army problems.

Further, as part of the Sustaining Membership Program, the Association provides members with the latest unclassified doctrine on Army weapons, equipment, organization and military concepts and

techniques. It also provides a film service and various Department of the Army publications, news memoranda and organizational and functional charts. An information service provides answers to hundreds of specific inquiries annually. Each member also regularly receives ARMY, the Association's magazine.

AT THE community level, AUSA chapters work closely with civic organizations. They sponsor visits to Army installations, arrange for presentation of films, demonstrations and speakers, cultivate good working relationships with news media. In addition, the chapters encourage young men to look to the Army as the desirable Service in which to serve, as the backbone of the Nation's defenses. Outstanding young men are urged to seek entrance to the United States Military Academy.

Through its active ROTC program, the 58 existing companies of AUSA pursue a varied program which augments their military skills, adds to their general Army background, and disseminates information about the Army's role in the Nation's defense. Members are encouraged to associate with fellow



**MAJOR GENERAL A. J. DREXEL BIDDLE**

**Pennsylvania National Guard  
President, Association of the U. S. Army**



cadets from other educational institutions and with active military personnel, thereby increasing their devotion to the Army and its aims.

Every cadet in an AUSA company holds membership in the Association and receives ARMY magazine. Currently AUSA is bringing its regional chapters into the ROTC program by making available speakers, facilities and other assistance, thus bringing cadets into close fellowship with mature, experienced individuals who believe in the aims and objectives of both the Army and of AUSA.

Under an Association-sponsored awards program, AUSA's ROTC medal is awarded to about 375 cadets annually, in colleges and essentially military schools. The medal is given to the Army ROTC cadet who is in the top 10 percent in ROTC grades and the top 25 percent in general academic grades, who has done the most for the military department or the Army. The same medal, with certain modifications, is awarded to a limited number of Army service school students, under criteria established by the school commandants.

Other national awards include two President's medals awarded each year, a Chapter scroll, and Certificates of Appreciation and of Achievement. Many chapters have their own awards programs.

CONTRIBUTING significantly to the Association's efforts to make the Army's story better known is ARMY, the monthly magazine. This highly regarded military journal keeps the military profession alert to innovations and changes in tactics, weapons, doctrines and policy, and at the same time keeps

civilian groups informed on Army problems. Editorially the magazine backs up positions taken by the Association in support of the Army, and demonstrates the Army's proud record of achievement throughout the Nation's history. Editors, reporters, commentators and leading government officials recognize its effective role in delineating problems of national security in the nuclear age.

The Association draws on the experience, talent and balanced judgment of its outstanding members in many fields of endeavor. All these abilities in turn are available in support of the Army. Governing body of the organization is an 11-man Council of Trustees, of which Mr. W. F. Rockwell, Chairman of the Board of the Rockwell Standard Corporation, is chairman. Well-versed in Army matters, Mr. Rockwell served as a colonel in the Army during World War II. The Association also receives advice and assistance of a 50-man Advisory Board of Directors. The national headquarters staff presently numbers 28, and is increasing as the Association undertakes additional activities.

That the scope of AUSA activities is increasing is attested by the fact that some 600 persons attended the first Annual Meeting—and last year more than 2,700 were registered. More than 200 members of the press and broadcasting industries covered the meetings. At the August meeting this year, more than 3,000 were registered.

AUSA supports the Army on many fronts. Notable instances include: active support of legislation favoring increased pay scales as proposed in the Cordiner Report; sup-

## **This Is AUSA**

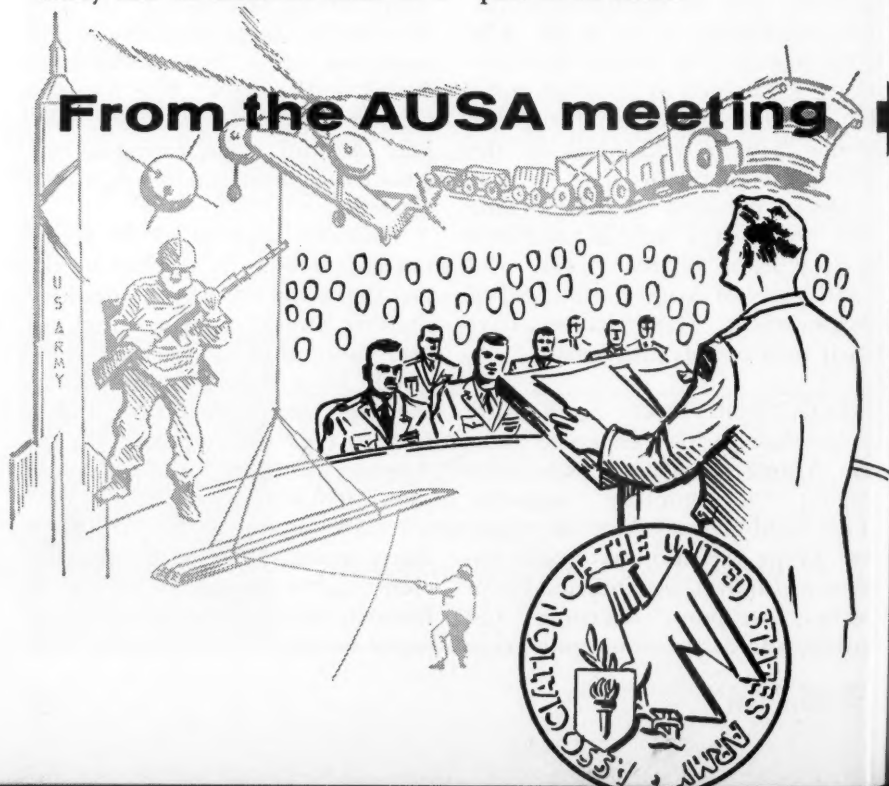
port of the Department of Defense reorganization plan with reservations; a resolution recommending that the successful missile team assembled in the U. S. Army Ordnance Missile Command be kept intact; a resolution calling for suitable memorialization of the Army's birthplace; and various other proposals.

While these are noteworthy examples of dynamic AUSA action in backing up the Army's concerns, it must be emphasized that the Association at all times retains its independent status, and that the Army makes no attempt to dictate to it. Only in this way can AUSA maintain a well-deserved reputation for integrity and independence.

ALL of the day-to-day activities of the Association in behalf of the Army and its members come to a

climax at the Annual Meeting. This meeting has grown continually in prestige and influence in many areas until it is considered a "must attend" affair not only by the military profession but by influential leaders in industry, government, education and the professions.

In organized efforts ranging from local to national levels, AUSA thus helps the Army perform its vital missions in national defense. AUSA will continue to work actively and encourage the support of all those who believe in the Army's historical and present-day role in preserving the Nation's security. The Association of the United States Army stands ready to serve, whenever and wherever the need arises, and welcomes to membership all those who wish to participate in its efforts.





## This Is a Modern Army

THE HONORABLE WILBER M. BRUCKER

Secretary of the Army

The Army today has one attribute which ranks in importance far above any new weapon, item of equipment, or concept—and that is the new, restless, and revolutionary mental outlook among its officers and men—an outlook which is constantly searching for something better and always looking for something more suitable to the requirements of the age.

After all, a modern army is one which is equipped to perform its functions in a modern world, and one which stays modern. In my opinion, the greatest single asset we have today is this new attitude and habit of thinking which is ready to cast away any outmoded ideas while seeking with a high degree of originality and imagination to stay ahead in an age when technological advancements occur with breath-taking speed.

Implicit in this kind of thinking is the realization that we must not lose sight of today's task—that we must be ready at all times to fight with what we have, that we dare not let our present battlefield capabilities decline while dreaming up new ideas for the future.

The relative proportion and make-up of land, sea, and air forces in the United States military structure is a dynamic thing and is of course constantly re-evaluated with changing technology and a changing threat. To say that United States military power is today adequate to meet threats to United States security does not mean that this same structure will be adequate three years from today. The United States' monopoly in atomic weapons ended some time ago, and the shift has been toward parity, a condition of mutual equilibrium arising from a roughly equal capability for reciprocal devastation. Even during that period when the United States had a monopoly on atomic weapons, Soviet leaders showed a willingness to accept grave risks. Today we face increasing boldness.

In this era of "balance of terror" the United States' ability for massive retaliation must be accompanied by the balanced ability to deter limited war—the piecemeal aggression which, if not curtailed, could seriously threaten our national security. When each side can make total nuclear war unprofitable for the other, the decision will tend to be reached on the basis of military capabilities for limited war. Hence, land forces have become increasingly important.

The modern equipment on display at this meeting demonstrates the Army's use of machines to help do the job. But the Army knows that there is no substitute for the heart, the nerve, the muscle, and the brain of men. Similarly, in the tough competition of power politics, while all forms of military power are essential, there can be no substitute for adequate land power, as the United States has learned time and time again. The inexorable logic of our times makes the Army more important today than it was yesterday, and more important three years from today than it is today.

Our air defense deployments are our first line of battle, an integral part of our fighting capability. They constitute a shield fashioned to fit the requirements of our world position, the precise threat we face, and our mission to prevent war if possible, or to win it quickly if it should be thrust upon us. Without these defenses the United States would have only a "one-strike" strategic force.

In the years since World War II, this Nation has been kept rudely alerted by repeated Communist pronouncements and activities which revealed their intentions to reduce all nations of the world to a state of vassalage. This common peril has acted upon us like war, bringing us closer together in the realization that we are in the front lines of a new and perilous episode in our history which may last for years to come. In the midst of these common trials and pressures, many improvements have been made and a new confidence has been born. With confidence comes achievement; with achievement comes renewed pride; and with pride comes the feeling of unity which will give us the one army we seek.



## Why We Need a Modern Army

GENERAL LYMAN L. LEMNITZER

Chief of Staff, United States Army

Present trends indicate clearly the direction which the development of long-range, strategic weapons is taking. In the coming ICBM era, we can anticipate a day, not too many years away, when our missile retaliatory resources can and must be made so numerous and relatively invulnerable that no missile or other attack upon them, even by surprise, could possibly eradicate them all. This means that our response to the attacker would be absolutely devastating to him—so clearly so that it would be senseless for him to attack in the first place.

When that time arrives, it could bring about, in a curious way, what some have characterized as the *equivalent of strategic nuclear disarmament*. We shall always want, as a vital component of our military power, the invulnerable missile deterrent needed to maintain this situation. With this in being, the situation will then mean, realistically, that the other components of our power will play the vital role in coping with the tactics and strategy of Communism short of the threat of general nuclear war.

These considerations are of vital importance today. In any meaningful planning, we have to take into account, from the beginning, the long lead-time from concept to actual fruition. This requirement for lead-time is obvious in the field of hardware. The requirement for lead-time is even greater in developing the capability to carry out a changed doctrine or strategy. It is greater, because many additional factors are involved. Therefore, we must be keenly aware that basic decisions made this year—decisions on national strategy or decisions on the budget—will inexorably establish the parameters of our actual capabilities five and more years from now to meet the then existent threat.

Modern military operations are not restricted to any particular element. The Army must fight as a part of a team which includes forces of the other U. S. Armed



Services and those of our Allies. We are all well aware that land warfare is not conducted solely on the surface of the land. It includes the conduct of operations in the air above the land and in the waters contiguous thereto. In order to carry out its responsibilities with the effectiveness to permit its fellow team-members to realize their own full potentials, the Army must be as modern in its functional area as the U. S. Navy, Marines, and Air Force are in theirs.

I want to emphasize that a modern Army requires the capability to fight successfully in either nuclear or non-nuclear conflict. This does *not* mean, in any sense, that the Army conceives of its role in modern war as being an unimaginative repetition of the methods of the past. What it *does* mean is that a modern Army must have a fully adequate nuclear capability to meet and defeat an enemy with nuclear weapons. At the same time, however, a modern Army's non-nuclear capability must be great enough that it need not feel compelled to use nuclear weapons as the only alternative to failure.

Our Army is modern in many vital respects. It is modern in its outlook and its thinking. It is modern in its knowledge, in its tactics, and in its organization. It is looking always to the future, and striving with all its energy to be ready for that future.

This is an effort which requires thought and devotion and persistence. It requires that concepts not only be envisioned but that they be promptly translated into existing reality. The Army does not balk at the requirement, because it knows that no matter how perfect a blueprint may be, no blueprint by itself ever took a hill, won a battle, or fired a single round.



## How We Use a Modern Army

GENERAL GEORGE H. DECKER

Vice Chief of Staff, United States Army

In its role as an element of the deterrent force the Army must perform many tasks. ● It must provide forces overseas in critical strategic areas. ● It must maintain mobile, combat-ready forces in strategic reserve in the United States capable of rapid reinforcement of threatened areas overseas. ● It must provide forces required for the defense of the United States and Canada against air attack. ● It must maintain a base for rapid mobilization, including strong, ready civilian component forces. ● The Army also has the very important function of equipping and training the armies of our Allies in some 42 countries around the world. This, in turn, enhances the aggregate deterrent strength of the Free World to the extent of some 200 divisions or equivalents.

The salient problem of the commander of the future—as I see it—will be to find and destroy enemy forces, while rapidly maneuvering or disposing his own troops so as to offer as little as possible in the way of a profitable target since it seems reasonably certain that once atomic weapons are introduced to the battlefield a target found will be a target destroyed.

If you will accept this premise then it would seem that the profile of a Modern Army should be based on these considerations. • First, it should be equipped so that it is able to locate and destroy enemy targets promptly with either conventional or atomic firepower as appropriate. • Next, it should have tactical ground and air mobility to enable it quickly to concentrate at a decisive point or to disperse equally rapidly. • Third, it should have the communications necessary to enable the commander to control widely dispersed and rapidly maneuvering formations. • Fourth, its logistical system must be capable of delivering and maintaining all of the many items required on the modern battlefield without offering a lucrative target to the enemy. • And finally, it must be capable of moving in to the enemy's homeland, restoring order and controlling the civilian population.



## One Modern Army

**GENERAL BRUCE C. CLARKE**

**Commanding General**

**U. S. Continental Army Command**

In battle there has never been anything but "One Army." No victory in American military history has ever been won by a single arm, service or component of the Army. Victory in the field has always been the product of the combined efforts of Regulars, Guardsmen, Reservists and Army civilians with all arms and services working as a combined arms team.

Modern technology has sliced wafer thin our protective cushion of time and space. No longer do broad oceans and powerful allies grant us years to mobilize and train our forces. No longer do we have months to activate units and perfect teamwork within the Army after war begins. No longer do we have time to erase conflicting attitudes and complete the welding process before commitment to battle.

Selected divisions and supporting units of the National Guard and U. S. Army Reserve are earmarked and must be trained and ready for mobilization immediately following M-Day. These forces are essential: • To replace without delay those Active Army forces moved abroad at the outset of hostilities. • To provide additional divisions—beyond those of the Active Army. • To fulfill our NATO commitments. • To man our air defense forces. • To enlarge our training establishments.

Combat knows no distinction whatsoever between combat ready units or individuals of the Active Army, the National Guard or the Army Reserve. Granted there is a difference in the degree of combat readiness appropriate to a Reserve unit and an Active Army unit. But never has the difference been so small!

From the very outset of a shooting war—general or localized—all components and all arms and services will be involved. The unity of spirit and teamwork in performance so essential to combat readiness must exist throughout the Army before the first shot is fired. Today our Reserve Components are an integral part of our deterrent to aggression.

*Straight from the shoulder*

# Red Eye Retaliates



A NEW portable, shoulder fired missile called Red Eye has been designed to track down and destroy low-flying aircraft, thus providing ground combat troops with a surface-to-air missile system for protection against strafing or bombing jets and conventional aircraft.

Although it resembles the famed "bazooka" it is not a rocket launcher like that weapon, but a complete weapon in itself, with the launch tube serving as a shipping container when capped at both ends. The missile itself is a composite structure containing propellant, warhead and an electronic guidance system which can easily be car-

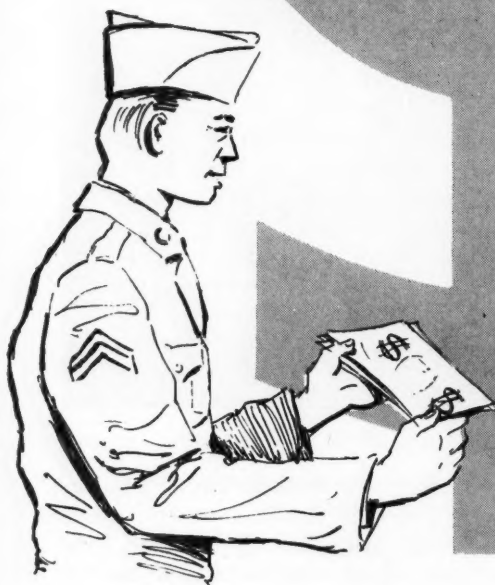
ried by one man in rough terrain.

The new weapons system, measuring approximately four feet long and three inches in diameter, weighs about 20 pounds. It is effective at altitudes and ranges commensurate with defense of Army field positions and Marine Corps amphibious operations against strafing and bombing aircraft.

THE weapon was developed for the Army and Marine Corps by Convair Division of General Dynamics Corporation, Pomona, California, under a contract from the Army Rocket and Guided Missile Agency.

**Under the Army's  
Enlisted Evaluation  
System,**

# PROFICIENCY



**T**HE date 15 January 1959 has special significance for Sergeant Robert J. Yamarik, a soldier stationed at Fort Hood, Texas. On that day he was administered one of the Army's new MOS proficiency tests. The test showed conclusively that he had outstanding knowledge of the essential duties and responsibilities in his primary Military Occupational Specialty of Artillery Survey Specialist. As a result, Ser-

geant Yamarik today is richer by \$30 a month.

The sergeant is assigned to duty as Chief of the Artillery Survey Section in the 1st Missile Battalion, 81st Artillery, 2d United States Army Missile Command (Medium), a Strategic Army Corps unit. His was the honor of being among the first soldiers to be tested under the new Enlisted Evaluation System, and his answer sheet was the first



Major General R. W. Porter Jr.

# Y PAYS OFF

to be received and scored at the U. S. Army Enlisted Evaluation Center at Fort Benjamin Harrison, Indiana.

During January 1959, over 17,000 soldiers were administered MOS proficiency tests and more than 10,000 qualified for award of a proficiency rating. Sergeant Yamarik and 384 other soldiers Army-wide took the test in primary MOS 153.6 (Artillery Survey Specialist). Only five of this group attained a higher proficiency score than Sergeant Yamarik. Because of his demonstrated effectiveness, his commander awarded him a proficiency rating (P-1) during March 1959—tangible evidence that it pays to be an outstanding soldier.

THE Army's rapid progress into the atomic and space age has generated a constant demand for improved equipment, tactics, and administration to provide the necessary mobility, firepower and flexi-

bility of a completely modern Army. Tremendous emphasis has been placed upon these improvements; however, as always, the soldier remains the Army's most important commodity.

It is not enough that soldiers are carefully selected from the civilian manpower pool and are trained to be competent technicians and leaders. The Army seeks the soldier with "staying power"—a career soldier animated by high morale, esprit and prestige.

It is generally recognized that a career soldier needs inspiration and motivation for professional advancement. Following extensive studies throughout the Department of the Army over the past few years, an enlisted management system has been developed to achieve the desired objectives. Announcement of the new E-8 and E-9 pay grades,

**MAJOR GENERAL R. W. PORTER, JR.**  
Director of Military Personnel Management  
Office of the Deputy Chief of Staff for Personnel  
Department of the Army



## Proficiency Pays Off

new enlistment and reenlistment options, the new Army green uniform, and civilian educational programs are but a few of the improvements which have already taken effect; and others are just around the corner. (See "Advancement in the Army," February 1959 DIGEST.)

The Enlisted Evaluation System—a "new look" feature of the Army Enlisted Management Program—provides an objective means for evaluating each soldier against his contemporaries classified in the same basic type of job or primary MOS. This system measures individual abilities through a written test and a Commander's Evaluation Report. It is a valuable management tool which assists commanders in personnel actions and in determining training requirements.

The Proficiency Pay Program introduced in the Army during November 1958 provides for award of special pay to those soldiers who are most proficient in their primary MOS. The program is designed to award some payments eventually to all MOS; however, the number and priority of payment is determined by the "criticality" of each MOS.

"Criticality" is determined by considering the reenlistment rate within the MOS and the amount of training time required to qualify

the soldier. The longer the training time and the lower the reenlistment rate, the higher the order of "criticality." In those skills with the highest "criticality" 90 per cent of the men may receive proficiency pay; in those with the least "criticality" only the 10 per cent most proficient men are eligible to receive proficiency payments. When fully implemented in approximately four years, the program will result in award of proficiency ratings to about 15 percent of the total authorized enlisted strength of the Army.

### Setting Up the System

DURING early planning stages of the Enlisted Evaluation System, it was recognized that provision must be made for maximum security and control of test materials and that tests would have to be scored impartially, accurately, and immediately. Accordingly, a centralized agency was established under the direct control and supervision of the Department of the Army. This agency, the U. S. Army Enlisted Evaluation Center, is especially designed and staffed to administer the Enlisted Evaluation System Army-wide.

In September 1958, the Department of the Army set forth the responsibility for major Zone of In-

New forms soon will be familiar Army-wide—Proficiency Data Card, left, records test score; above right is the Commander's Evaluation Report form.

COMMANDER'S EVALUATION REPORT (AR 611-205)				TCO SYMBOL 226	
SECTION I (To be accomplished by Personnel Officer)					
1. LAST NAME - FIRST NAME - MIDDLE INITIAL Jones, John E.			2. GRADE Sgt-E5 (P-1)	3. SERVICE NO. RA 16532938	4. DATE OF RANK 19 Jan 51
5. UNIT Hq & Hq, Ft Bliss, Ft Bliss, Texas			6. MAJOR COMMAND 4th US Army		7. ACTIVE DUTY DATE 4 Mar 39
8. ADDITIONAL SELECTION FACTOR SCORE			9. POSITION OCCUPIED - MOS - GRADE AUTHORIZED Radar Repairman 282.1 E-5		
10. MOS DATA		MOS	DATE AWARDED	11. PROFICIENCY PAYMENTS AWARDED	
PRIMARY	282.1	9 Jun 50	MOS	DATE AWARDED	DATE TERMINATED
OTHER	111.1	5 Dec 45	282.1	1 Nov 58	
OTHER					
12. MOS TRAINING AND EDUCATION					
COURSE OR DOT CODE		MOS CODE		NAME OF SCHOOL	
Radar Repair		282.1		The Signal School	

terior Army and oversea commanders to monitor the MOS proficiency testing of enlisted personnel worldwide. Installations within each commander's area of responsibility were designated as test centers, and qualified officers and warrant officers were appointed as Test Control Officers (TCO's). Today there are more than 200 TCO's at worldwide installations and activities ranging from Moscow to Hong Kong and from Alaska to Panama. Each TCO is specifically identified by a numerical symbol assigned by the Enlisted Evaluation Center.

WITH everything in readiness, the Department of the Army announced 64 critical four-digit MOS to be tested during the period 15 to 30 January 1959.

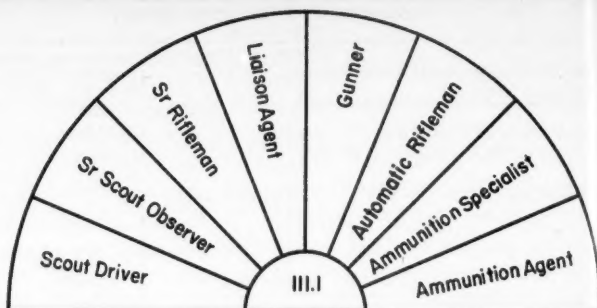
Immediately upon notification of the MOS to be tested, unit personnel officers screened their records and identified all soldiers eligible for test. A report listing all eligible personnel (including Sergeant Yamarik) was made to the responsible TCO who then forwarded a consolidated requisition for test materials to the Enlisted Evaluation Center. The Center in turn

promptly furnished the TCO with a test aid for each soldier to be tested.

Besides providing a list of pertinent Field Manuals, Technical Manuals, regulations and similar directives for individual study, the test aid contains a separate paragraph for each skill level within the MOS, specifying all of the duties expected to be performed by the soldier. It thus helps the soldier concentrate on any unfamiliar areas in his specialty.

Normally, a separate test is written for each skill level within the three-digit MOS. You will remember that the skill level in the three-digit MOS (for example, Light Weapons Infantryman 111) is shown by a fourth digit (for example, Squad Leader 111.7). Since every skill level digit in an MOS is composed of a number of different duty positions, the test questions measure all possible duties to which a soldier might be assigned at the given skill level. For example, a soldier classified in primary MOS 111 (Light Weapons Infantryman) at a .1 skill level can reasonably be expected to be assigned to any one of eight duty positions.

Skill level is shown by fourth digit, which indicates possible duty positions to which Light Weapons Infantryman (MOS III) may be assigned.



Experience has shown that some soldiers—particularly those who are repeatedly assigned to a specific duty position—become well qualified in only a small area of the overall MOS requirement. Test aids furnished 60 to 90 days in advance of the actual test assist the soldier to prepare for the test in every aspect of his primary MOS and skill level.

Tests, in booklet form, were carefully wrapped, addressed, and forwarded to the TCO's by registered mail to insure prompt and safe receipt. TCO's are the only individuals authorized to receive and have access to these test booklets.

WHILE Sergeant Yamarik was "boning up" for the test, the unit personnel officer was busy initiating a Commander's Evaluation Report (CER). Like the officer's efficiency report, the CER permits the immediate supervisors to assess the soldier's knowledge, skill, and leadership ability. Enlisted personnel serving in pay grade E-6 or higher are authorized to rate soldiers under their supervision. However, the rater must be serving in a pay grade higher than the soldier who is rated. Only officers and warrant officers are authorized to endorse the CER. After final review by the unit commander, the completed CAR's are forwarded to

the TCO just prior to the test date.

Schedules were prepared and announced. Test rooms were carefully selected to insure an atmosphere of comfort and quiet. Officer test administrators and trained enlisted proctors (Grade E-7 or higher) aided in administering the tests.

DEVELOPMENT of an MOS proficiency test requires approximately eight months from the preparation of basic outlines until final publication in printed form. The tests are deliberately written to find out what a soldier knows about his MOS and the duties involved. Questions are prepared by MOS specialists at various Army Service Schools and are reviewed by the appropriate Department of the Army Technical or Administrative Service or U. S. Continental Army Command. The tests are put in final form at the Enlisted Evaluation Center.

Most of the tests allow three hours to complete all of the written items which measure knowledge and ability in handling problems encountered in everyday operations on the job. Schematics, photographs, maps and diagrams depict situations closely resembling actual duties.

Asked his opinion concerning the test, one soldier commented: "The questions were not too difficult; however, if you don't know your

job from practical experience, you might as well not take the test."

### Test Scoring and Rating

AT THE completion of each test session, the TCO forwards the answer sheets and CER's to the Enlisted Evaluation Center. There trained personnel review each document to insure administrative correctness and eligibility of all soldiers tested. Key punch cards are prepared for each answer sheet and CER. Using electronic equipment, the answer sheet and CER are scored independently by placing the punch cards into a computer and obtaining a composite proficiency score.

A Proficiency Data Card is prepared for each soldier tested. This card contains the soldier's name, grade, service number, unit of assignment, primary MOS in which tested, month and year tested, score achieved on the MOS test, and proficiency score attained.

The Center forwards these cards and machine-prepared rosters containing essentially the same information through the TCOs to unit personnel officers, for entry in the soldier's Enlisted Qualification Record and appropriate 201 file. Soldiers are informed by their unit commanders of the score attained.

Concurrently, the Enlisted Evaluation Center prepares and forwards a consolidated machine-prepared roster of results to each major commander and to the chief of each Technical or Administrative Service in the Department of the Army, indicating the number of personnel tested by four-digit MOS, pay grade, and proficiency scores attained. A similar report, consolidated on a world-wide basis, is fur-

nished to Department of the Army.

Minimum qualifying scores are established by Department of the Army by considering the number of payments authorized for each MOS as determined by its computed degree of criticality. Special orders are then published by units awarding proficiency pay to those men whose scores were above the minimum qualifying score. The present monetary rate for a P-1 proficiency rating is \$30 per month. This pay may be pro-rated, depending upon the date of the award.

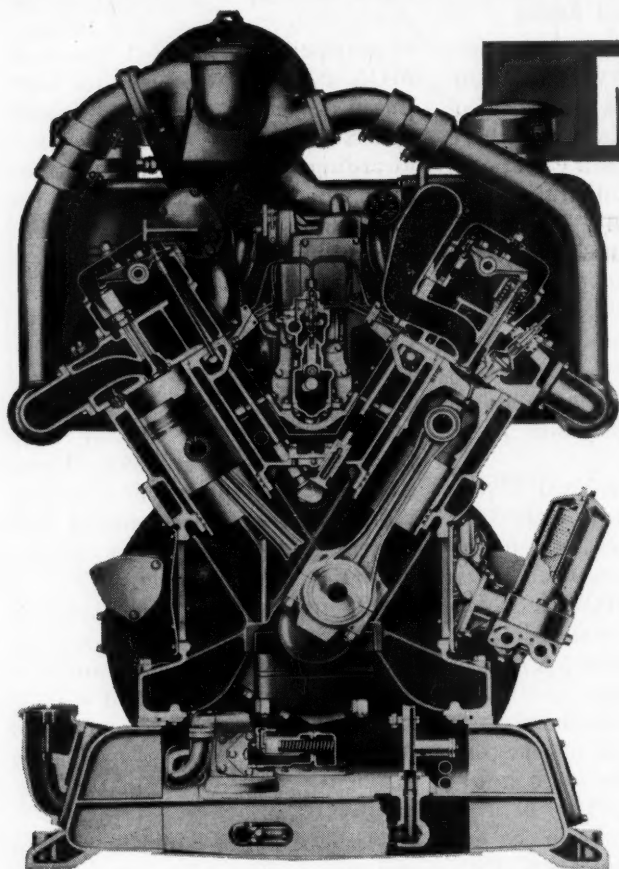
THE Army's first year of the proficiency pay rating will be completed in November 1959. Those who received proficiency ratings should be pleased and proud that they were among the first to benefit from this new program.

It is important to remember that proficiency payments are not gifts. They are awards earned by individuals who receive them and will be retained only if the recipients can requalify each year by making a sufficiently high score on the proficiency tests.

The Enlisted Evaluation System currently is limited in its application to the Proficiency Pay Program. However, it has many additional future uses. Besides encouraging the soldier to advance his skills, it permits the well-qualified soldier to obtain, by direct effort, proper recognition for his abilities. Through the Enlisted Evaluation System the more competent and skilled individual has an ever-renewed opportunity and incentive to prove himself in the eyes of his officers and fellow soldiers and to gain great satisfaction in his chosen professional career.



**More power and rugged dependability  
for a modern, mobile Army is assured by**



**S**MASHING through to the German's rear, Montgomery's mechanized forces sped across the desert in an attempt to bottle up Rommel's troops during World War II. But the drive ground to a halt short of its goal—stopped not by the German might, but by the inefficiencies of the gasoline engines powering the thrust. Fifty miles more operating range was needed; instead, days were added to the battle of El Alamein.

In the ensuing years, determined

to provide that extra range, the Army Ordnance Tank-Automotive Command (OTAC) has been developing and testing diesel engines for the Army's fleet of armored vehicles. In addition to gaining more operating hours per tank of fuel, OTAC is realizing extra benefits in greater power, increased hill climbing ability and reduced servicing and logistics requirements.

Diesel engines are not new to the Armed Forces. They were used extensively in World War II and the

# Infantry Diesels

**Major General Nelson M. Lynde, Jr.**

Korean War. They have provided dependable power from the Arctic to the Antarctic, from steaming jungles to lofty mountain tops. Much of this experience has been under combat or adverse climatic conditions.

The Germans learned to fear "The Whispering Death" — the reverberating throb of the diesel-powered M10 Tank Destroyer, a sound which could not be pinpointed, but which brought with it smashing blows from the M10's lethal 3-inch gun. The 634th Tank Destroyer Battalion fought throughout the European campaign with the 1st Infantry Division. Only eighteen of its vehicles were lost through enemy action, while one companion outfit, gasoline-powered, was re-equipped three times.

On Normandy's Omaha Beach, D-Day 1944, a diesel-powered tractor worked around the clock to help open the way for landing operations. The tractor pulled wheeled and tracked vehicles out of the surf while it was the specific target for intense mortar and artillery fire. Then the two operators—Privates William J. Shoemaker and Vinton W. Dove—cleared obstacles from the beach exits. They smashed

road blocks and filled antitank traps. Both operators received the Distinguished Service Cross for "their courageous actions permitting vehicles and armor to move out in support of the infantry troops." In 1200 hours of service, the tractor was in the shops for maintenance only once.

During World War II, several thousand diesel-powered M4A2 Tanks were produced, and about half received combat service by the United States and her allies. More than 51,000,000 horsepower was supplied by diesel engines for Navy craft. Much other dieselized equipment was used by all the services during this period.

Recently, diesel-powered tractors and electric generator sets have provided prime power for defense and scientific programs in both polar regions. DEW Line—the network of radar stations across the Arctic Circle—was pioneered with trains pulled by diesel-powered tractors. One such tractor-train traveled 600 miles in seventeen days, establishing seven stations along the route. Despite minus 20 degree temperatures, up to 375 hours were placed on the engines with just three shutdowns.

## **Military Diesels**

—for servicing only. Around the world, for war and science, the military has come to rely on dependable, economical diesel power.

In future conflicts the Armored Division is expected to pack one of the Army's best punches. This combination of tanks, armored cavalry, infantry, engineers, and artillery must be able to move quickly, for long distances, and with a minimum of supply lines.

These requirements can best be met with the compression ignition diesel engine. Fuel is ignited by heat generated by the 16 to 1 compression of air in the cylinder into which the fuel is injected, instead of by an electrical system. The fuel system, matching military requirements for dependability and serviceability, includes precalibrated fuel pumps and injectors for each cylinder. Pumps and injectors are interchangeable between cylinders, need no adjustment in the field, and are as easily installed as a spark plug.

Precombustion chambers in each cylinder precondition the fuel, provide excellent response at all speeds, and permit burning a wide variety of fuels. Heavy fuels, such as low grade furnace oils, can be burned as readily as light fuels, including gasoline mixed with lu-

bricating oil. A foraging tank could replenish its supply from local fuels and continue on its mission.

### **Efficiency, Ruggedness, Durability**

DIESEL engines typically operate on high compression of a large volume of air. As a result, the amount of fuel injected or the ratio of fuel to air can be varied widely to match load requirements. From idle to full load, the diesel engine has better efficiency than gasoline engines — diesel efficiency is about 40 percent compared to 25 percent for gasoline. Coupled with more heat content per gallon of diesel fuel than gasoline, the diesel engine delivers more horsepower per gallon and almost twice the operating range per tankful.

Ruggedness and durability are other marks of diesel design. In crawler tractors the engine must operate smoothly despite shock loads imposed by sudden changes in load on the machine and by operating over rough terrain. These engines normally operate thousands of hours without major repairs.

Diesel engines have excellent lugging power—power to speed up steep inclines, power to negotiate extra rough spots without stalling, power to permit rapid maneuvering over all types of terrain without



**MAJOR GENERAL NELSON M. LYNDE, JR.** has been Commanding General of the U. S. Army Ordnance Tank-Automotive Command, Detroit, Michigan, since 1955. In July he was named Assistant Chief of Ordnance, Field Service, Office of the Chief of Ordnance, Department of the Army.

becoming a sitting duck. A large volume of air in the cylinders permits additional fuel to be injected as soon as the engine begins to lug down under load, providing an extra surge of power when needed most.

Diesel fuel is safer than gasoline. Direct hits in the engine compartment of a diesel-powered tank will not cause a disastrous explosion of fuel, as with gasoline. And a diesel-powered tank that rolls over on a steep incline can be righted and sent on its way, whereas gasoline-powered tanks frequently catch fire. Accumulations of gasoline in the tank hull from leakage in the fuel system often lead to explosion—but with diesel, this is not a hazard to be faced.

In addition, the absence of a spark ignition system for combustion eliminates the need for the expensive shielding of the engine to prevent radio interference.

### Operating Principles

IN MANY respects, the diesel engine is like a gasoline engine. Both have cylinders, pistons, crankshafts, valves—all in the same relative positions. The major differences arise in the method of igniting the fuel. But these differences provide the many advantages of diesel power.

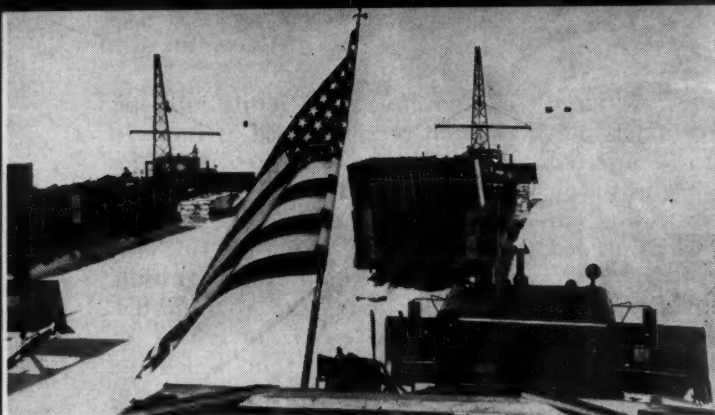
Basically, the major difference between the two types is the methods of fuel ignition—compression ignition in the diesel, spark ignition in the gasoline. Compression ratio is the relationship between the space in the cylinder with the piston in its lowest position and the space at its highest position. At about 12:1 compression ratio, the temperature of the compressed air

is high enough to ignite most petroleum products used as fuel. In diesel engines, compression ratios run about 16:1. This permits the diesel engine to use the heat of compression to ignite the fuel—the principle of compression ignition. This eliminates the complicated, troublesome electrical system of spark ignition engines, which use an electric spark in the cylinder to ignite the fuel. Because of greater expansion of the burning gases in the higher compression engines and more heat content of the fuel, the diesel engine is about 40 percent more efficient than the gasoline engine.

SINCE the diesel fuel is ignited by compression, it must be admitted to the cylinder differently than in a spark ignition engine. First, it is necessary to understand the four-stroke cycle common to both types of engines. One, intake—air or an air and fuel mixture is drawn into the cylinder on the downward piston stroke. Two, compression—the air or mixture is compressed by the rising piston. Three, power—the fuel is ignited and the expanding gases of combustion force the piston downward. Four, exhaust—burned gases are cleared from the cylinder by the rising piston.

In the gasoline engine, lower compression ratios permit the air and fuel mixture to be fed into the cylinder during the intake stroke. A throttled quantity of air mixes with a metered amount of fuel in the induction system before entering the cylinder.

In a diesel, only air is drawn, or packed by a supercharger, into the cylinder of the engine during the intake stroke. The air is compressed



One Diesel powered tractor train traveled 600 miles in Arctic area, operating 375 hours with just three shutdowns for servicing only.

by the rising piston; its temperature rises to about 1100° F. The fuel is sprayed into the chamber slightly before the piston reaches its topmost position and is ignited by the intense heat.

### Fuel Supply and Combustion

ALL diesel fuel injection systems provide basically the same functions—a fuel supply, a transfer pump, filters, high pressure pumps, timing metering, and injection. Variations occur mainly in the methods of timing, metering, and injection. The system has been proved under demanding earth-moving conditions performed by crawler tractors, high-speed hauling units and precision motor graders.

Several measures are available to help provide clean fuel. First, operators should use only clean fuel. Most foreign particles will settle out if the fuel is allowed to stand for at least 24 hours. As the fuel enters the tank, larger particles are caught by a screen inside the filler opening. Fine particles are removed by resin-impregnated cellulose filters before the fuel enters the injection pumps.

Fuel is delivered from the fuel tank to the filters at about 15 PSI by a gear-type transfer pump. Flow

rate increases as the engine RPM rises, but pressure is maintained at about the 15 PSI level by a pressure relief valve in the filter housing. Excess flow is returned to the tank.

The amount of fuel injected into the cylinders is varied by a governor. If the engine is slowed by load, such as when a tank starts up a steep hill, the injection rate is automatically increased. More fuel per piston stroke increases power, returning the engine to desired RPM. At full speed the governor controls engine speed to within 10 percent of full load RPM.

An individual injection pump delivers carefully measured quantities of fuel, at the proper instant to each cylinder. In diesels operating at about 2000 RPM, this injection period may last only about three thousandths of a second. Pumps are actuated and timed by a camshaft, geared to the crankshaft. They are mounted in line, geared to a rack controlled by a governor.

The precombustion chamber is a small compartment between the injector and the cylinder with a narrow passage into the cylinder. As the piston rises on its compression stroke, air in the precombustion chamber is compressed, its tempera-



ture jumping to about 1100° F—equal to that in the main combustion chamber. As the fuel is injected into this small chamber, about 10 percent bursts into flame, causing a rapid pressure rise inside the chamber. The remainder of the fuel is forced out through the small passage, atomizing and mixing with the air in the main combustion chamber for efficient burning. This system permits heavy fuels, rich in heat content, to be burned as readily as light fuels, with no changes in components of the system.

### Air Intake and Exhaust

DIESEL engines have a tremendous appetite for air. This appetite has been increased by the adoption of turbosupercharging to pack more air into each cylinder, permitting burning of more fuel on each stroke for greater power from the same size engine. An efficient manifolding and cleaning system aids in filling this need.

Military vehicles face the same problems of air supply as confront construction machines. First, the air frequently contains large quantities of dust. If the dust is not removed, it will cause excessive wear and subsequent failure. Second, air cleaners must be compact, rugged, and easily serviceable. Third, the engines must be able to perform satisfactorily from sea level to mountain tops. Each of these conditions have been met by the modern diesel engine.

Air at ambient temperature and pressure enters the system through the inlet pipe, and passes through an air cleaner where the dust is removed. If a turbosupercharger is used, clean air is pulled from the cleaner through the compressor side

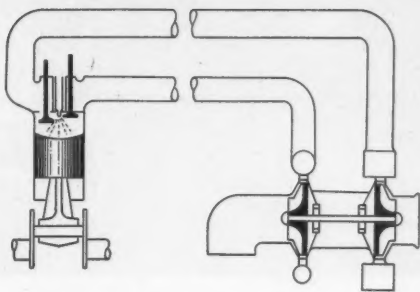


Diagram shows air system of a Diesel engine, which mixes a throttled quantity of air with a metered amount of fuel in inductive system.

of the turbosupercharger and is packed into the inlet manifold. High pressure air is then distributed to each cylinder, entering on the suction stroke of the piston. The air is then compressed to about 600 PSI and 1100° F, mixing and burning with the injected fuel to produce power.

Burned gases are discharged from the cylinder into the exhaust manifold on the exhaust stroke. The hot gases are vented to the atmosphere through the turbine side of the turbosupercharger, using otherwise lost power to spin the turbine and directly connected compressor.

This system provides a relatively constant amount of air per stroke, regardless of the amount of fuel injected. It supplies about 20 pounds of air per pound of fuel at normal full load conditions. At least 17 pounds of air per pound of fuel is necessary for complete combustion. This excess of air permits additional fuel to be burned when the engine lugs down under load, providing, for example, that extra surge to carry a tank through a soft spot or over the top of a steep hill.

A new dry type air cleaner has



For their work with Diesel powered tractor at Normandy Beach, Pvts. W. J. Shoemaker and V. W. Dove won Distinguished Service Cross.

been developed recently for tractor engines which removes 99.8 per cent of all dirt from the diesel's intake air, even under the dustiest conditions.

Requirements for compactness, ruggedness, and serviceability are also met by this cleaner. It is small and completely self-contained. It has been designed to meet rough earth moving conditions, to withstand continued shock loads without malfunction.

This air system normally provides sufficient air for operation up to 2500 feet with no appreciable loss in horsepower. The turbosupercharger added to the fuel system can be adjusted to provide adequate power output at altitudes up to 16,000 feet.

### Cooling Systems

TEMPERATURE control is a major factor in the proper performance of an internal combustion engine. Continued efficiency and adequate service life depend on the ability of the cooling system to maintain even temperatures, well within maximum and minimum ranges, throughout the engine.

Cooling can be accomplished either by using a liquid coolant or directly by air. In either case, the purpose is the same—the system

must remove the excess heat of combustion while preventing undue stress and wear in the engine.

Excessively high temperatures must be avoided. Overheating causes breakdown of the lubrication film separating rubbing surfaces, permitting rapid wear and premature failure of working parts. The most favorable temperature is below 220°F. At this point, the oil can adequately perform its cooling and lubrication tasks.

In addition, the cooling system must prevent loss of strength due to overheating of the metal. Many engine components have been hardened to resist wear. Excessively high temperatures can destroy this hardness, permitting rapid wear even when the engine later is operated at normal temperatures. Overheating also increases metal fatigue. Hot spots can cause metal to crack, parts to break.

Equally important, though not so well understood, are the detrimental effects of low engine temperatures. When engine temperatures fall below 160° F, the excessively low temperatures permit water vapor formed by combustion to form on the cylinder walls and combine with any sulphur in the oil to form sulphuric acid. This compound accelerates wear of rings

and liners and destroys the additives in the lubrication oil which normally help keep the engine clean.

Either air or liquid cooling can do a good job of cooling oil, including torque converter and transmission fluids, consuming about the same horsepower. But air cooling must use considerably more horsepower, particularly under severe conditions, to properly control temperatures of cylinder walls.

### Ignition Methods

METHODS of starting do not differ greatly between gasoline and diesel engines, although on the surface they would appear to. In both instances, it is necessary to crank the engine until the air and fuel is compressed and ignited, permitting the engine to run under its own power. An electric motor can start the diesel adequately at far below freezing temperatures by using a glow plug in the precombustion chamber.

A glow plug is a metal rod, or resistance unit, heated electrically, which raises the temperature in the chamber sufficiently to help ignite the fuel. Direct electric starting can be accomplished at temperatures well below zero.

Maintenance on a diesel engine is relatively simple. Only lubricating oil and filters need be serviced during several thousand hours. Compression ignition eliminates the electrical system otherwise required to provide a spark in each cylinder at the proper time.

DUE to use of hardened alloy steels and precision manufacture of the components, the fuel system provides a long, trouble-free life.

When these components wear enough to adversely affect the operation of the diesel engine, they can be replaced economically enough to preclude rebuilding. The injector pump, held in place by four bolts, can be installed properly by simply lining up a mark on the plunger rotating gear with a mark on the rack.

The injector is screwed into the precombustion chamber, which in turn is screwed into the cylinder head. Both can be changed with a wrench as easily as a spark plug. No adjustments are necessary for installation or maintenance of these components of this fuel system.

LOGISTICS will benefit from the use of diesel fuel, which is less flammable than gasoline, eliminating much of the fire hazard. Diesel fuel, moreover, is available locally in many areas in larger quantities and at much lower cost than gasoline. And since the diesel engine produces more horsepower per gallon of fuel burned, the volume needed will be reduced. Any enemy stocks can be burned in these engines, enabling our forces to use captured fuels.

For these many reasons—reduced maintenance, greater safety, reduced logistical problems, more efficient operation, increased luggability, less smoke—the U. S. Army Ordnance Tank-Automotive Command is developing and testing a complete line of diesel engines for its armored vehicles. The program has been underway for several years, and the changeover may be ready soon. The results point the way toward more power and rugged dependability for the modern mobile Army.

TRAIN

AUTOMOBILE

MAN WALKING

WOMAN WALKING

## ULTRA-SENSITIVE RADAR

### Pinpoints Moving Targets

SO SENSITIVE that it can detect a soldier crawling two miles off — can even tell the difference between a man and a woman walking—a new ultra-sensitive frontline radar that can look deep into hostile territory has been developed under direction of the U. S. Army Combat Surveillance Agency.

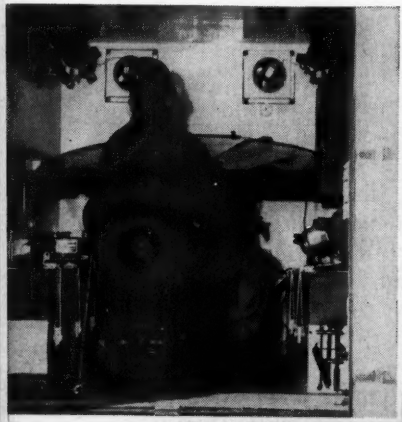
The new set will spot a rolling tank, truck or jeep at ten miles or a soldier crawling on the ground two miles away, even if he moves very slowly. In one test under ideal conditions the set spotted a soldier walking 15 miles away.

An experienced operator can distinguish the sounds made by varying moving objects, each of which produces a characteristic noise. In addition, he can get more precise information on a target's position and direction of movement from the set's radar scope.

The set scans a 30-degree sector of a battlefield. When the operator hears a suspicious motion sound, he can narrow the radar beam to zero-in on the target. The information can be used for rapid placement of fire or various other tactical measures. It is the only ground-to-ground radar that can detect moving targets at such long range, in fog or darkness.

The movement monitor, which can be set up in less than half an hour, is composed of a portable shelter for the controls and displays, and a separate antenna mounted in a five-foot plastic bubble. The entire system can be packed in the shelter for transportation on a small trailer or by helicopter.

The new radar was developed jointly by the U. S. Army Signal Research and Development Laboratory, Fort Monmouth, New Jersey, and the Hazeltine Corporation, Little Neck, N. Y.



Operator, left, plots target position inside van. Antenna for mobile movement monitor is housed in plastic bubble, extreme right.



**Lighter, Amphibious, Resupply, Cargo**

## **Introducing LARC— Lightweight, Highly Mobile Amphibian**

TESTING has begun on the first model of a new line of light, highly mobile amphibians specially engineered for modern warfare needs. Known as the LARC-5 (Lighter, Amphibious, Resupply, Cargo), the new five-ton capacity, all-aluminum craft is undergoing tests at Fort Custer, Michigan. It features simplicity, ease of maintenance, and improved marine capabilities such as greater speed and ability to negotiate heavy surf. Four large low-pressure tires absorb road shock and provide exceptional off-road mobility.

Built with a marine hull configuration, the new craft—designed to replace the old World War II DUKW's—is 35 feet long and 9 feet wide,

powered with a single 270-horsepower engine located aft, with the controls forward. It has a road speed of up to 35 miles an hour, and a water speed of about 10 mph. Loading and discharging is facilitated by removable side gates.

Seven of the new amphibians are being constructed under contract with Ingersoll Kalamazoo Division of Borg-Warner Corporation, Kalamazoo, Michigan. A larger 15-ton version known as the LARC-15 also is scheduled for early delivery. Together with the already operational 60-ton BARC, this will provide the Army with a completely new family of modern amphibians capable of greatly increased over-the-beach supply effort.



LARC is put through its paces on rough ground, through water, as tests begin on new 5-ton amphibious resupply unit.





***Far-ranging, high speed communications for STRAC units is provided by a new***

## **VERSATILE COMMUNICATIONS CENTRAL**

PROVIDING more voice and teletypewriter channels than ever before available in a high-speed mobile communications central, a new versatile Army radio communications system has been developed with an operational range of 1,000 to 2,000 miles, capable of linking the field commander of a Strategic Army Corps unit directly with the Army's global communications system.

Designated the AN/TSC-16, it provides two voice channels for separate conversations and up to 16 teletypewriter channels. A facsimile facility can be substituted for one voice channel, while an additional radio voice is available for technical or operator's messages. The new equipment consists essentially of a single-sideband ten kilowatt transmitter and receiver.

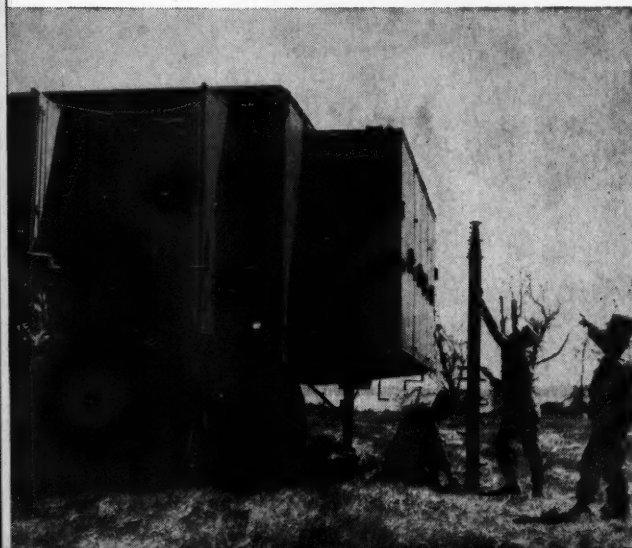
The central is contained in two vans with tractors and power trailers, weighing in all about 70,000 pounds. All

equipment, together with 46 operating personnel, can assemble, load into three C-124 aircraft and be airborne within 12 hours. On arrival, the system can be ready for interim operations in four hours, for full-capacity operation in two days, with rhombic or diamond-shaped antenna in place.

The AN/TSC-16 was built for the Army Signal Corps by Adler Electronics, Inc., of New Rochelle, New York. Cost of each unit is about half a million dollars. First of the centrals has been assigned to a Strategic Army Corps unit, the 519th Signal Company, Fort Gordon, Georgia, for intensive training of the operating team.

The air transportable communications central is designed for rapid deployment in critical areas, where it can provide STRAC commanders with almost immediate communications with Department of the Army and other headquarters.

Airborne communications central providing 2 voice channels, up to 16 teletypewriter channels, can be set up (left) and ready for interim operation (right) in four hours, or for entirely full capacity operation within two days.



**Keeping Current With the**

**CONTEMPORARY MILITARY READING PROGRAM**

A synopsis of selected books included in the Army Contemporary Military Reading List of professional interest to Army members.

**PANZER LEADER by Heinz Guderian, Dutton, 528 pp. \$7.50.**

The man responsible for organization of the Nazi armored forces presents a detailed account of the building up of the German war machine. Well illustrated with maps, there is a foreword by B. H. Liddell Hart.

**THE WAR POTENTIAL OF NATIONS by Klaus Knorr, Princeton University, 306 pp. \$4.**

Professor Knorr of the Center of International Studies at Princeton formalizes into categories the various factors which empower a nation to fight—motivation of population, administrative capacity of government, and economic capability of a society to meet modern war requirements.

**NEW DEVELOPMENTS IN ARMY WEAPONS, TACTICS, ORGANIZATION, and EQUIPMENT by Capt. Marvin L. Worley, Jr., Military Service Publishing Company, 1958, 261 pp. \$3.50.**

This authoritative compilation of data brings together in one volume an overall picture of Army materiel and tactical concepts for the use thereof, providing a digest of important unclassified new developments of general interest.

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**Freedoms Foundation Awards for Armed Forces**

DESIGNED especially for members of the Armed Forces on active duty, the Valley Forge Patriots' Awards, given annually through the Freedoms Foundation at Valley Forge, Pennsylvania, are but a single category among many awards that Army personnel may seek. The Patriots' Awards—in the amounts of \$1000, \$500, 50 awards of \$100, 50 awards of \$50, George Washington Honor Medals and Honor Watches—are granted for letters of between 100 and 500 words on the theme "My Job: Protecting America's Freedoms." Entries in this category should include the military member's name, rank and serial number, military address and home address. Closing date for entries is 1 November 1959.

Soldiers may also submit published material of their own, such as cartoons, editorials, essays, photographs, or nominate any other's organization's or school's material under the 1959 National and School Awards Program. All in all, \$100,000 will be given in awards in cash, honor medals, honor certificates, historic trips, Valley Forge Freedom Libraries and Valley Forge Teacher Medals.

The Credo of the American Way of Life (see back cover) is the sole basis for judging nominations, each of which must relate to at least one Credo principle. Material must have been written, developed or released after 1 November 1958. Judging is by a jury of at least 30 including jurists, officers of national veterans, patriotic and service club organizations. The awards will be announced on Washington's Birthday, 1960 at the Foundation's Valley Forge National Headquarters. Additional information may be obtained from the Awards Administration, Freedoms Foundation at Valley Forge, Pennsylvania.



## of professional interest

### New Chief of Information

Maj. Gen. William W. Quinn is the Army's new Chief of Information, succeeding Maj. Gen. Harry P. Storke who has been assigned as Commanding General, I Corps, Eighth U. S. Army in Korea. Prior to his appointment as Army Chief of Information on 1 August, Gen. Quinn was Deputy Assistant Chief of Staff, Intelligence.

### Mile a Minute Wire

In field tests of air-layable field wire, developed at the Electronic Proving Ground, Fort Huachuca, Arizona, wire was laid at the rate of a mile a minute, over terrain that would be extremely difficult for a man on foot to negotiate. Key to the system is a light weight dispenser, termed the M-8C. Installed easily and quickly in a helicopter, the M-8C is loaded with spool-shaped canvas bags of wire connected together; the wire is dispensed by tension caused by weight of the line and forward motion of the aircraft. In a recent demonstration at Fort Huachuca, Secretary of the Army Wilber M. Brucker talked over a four mile stretch of wire that had been laid in four minutes.

### Successor to Jeep

A new quarter-ton utility truck which will succeed the famed Jeep as the Army's tactical, commercial and reconnaissance vehicle, will be produced under a \$115,070,000 contract recently awarded to the Ford Motor Company. Lighter than the Jeep, it is air droppable, is of rugged construction, has cross-country mobility, low fuel consumption and economy of maintenance. The new vehicle was de-

veloped under contracts with the Army Ordnance Corps, and pilot models have been under test since 1954. Deliveries will start in April 1960.

### Fluid Transporters on Way

First orders have been placed for 166 Rolling Fluid Transporters to be delivered to the Army Transportation Supply and Maintenance Command in St. Louis. The tire-shaped containers are 60 inches high, 42 inches wide, and are mounted in pairs to be pulled behind a prime mover. Each tire can carry 500 gallons of liquid, for a unit capacity of 1000 gallons. They are being manufactured by Goodyear Tire and Rubber Company, Akron, Ohio.

### Mohawk Demonstrated

Unveiling ceremonies for the YAO-1 Mohawk recently were attended at Grumman Aircraft Engineering Corporation, Calverton, New York, by top military officials who saw the new plane go through its paces. Designed to operate from small, unimproved fields and "live with the Army in the field," the Mohawk is powered by two Lycoming T-53L3 engines, features a 55-knot stall speed, and has relatively the same short take-off and landing (STOL) capabilities as existing lightweight single-engine airplanes. However, with an empty weight of 8,000 pounds, it is one of the largest to enter Army service. It is the first Army plane to be powered by prop-jet engines.

### Logistics Officer Program

A milestone was passed recently in the Army's Logistics Officer Program when

the thousandth member was officially enrolled. In a Pentagon ceremony, Maj. Gen. R. W. Colglazier, Jr., Army Deputy Chief of Staff for Logistics, presented Lt. Col. Wallace Pardue with a letter of acceptance. Launched in early 1956 with a goal of improving the whole system of developing and assigning logistics managers, the program involves the detailed screening of selected officer records at Department of Army Headquarters.

### Plastic Glue Repairs Bone

Latest in a long line of medical advances pioneered by the Army is a plastic glue designed to repair damaged bones. Experiments conducted by the Army Medical Service indicate that the substance, a polyurethane foam, would greatly reduce length of time of hospital care for soldiers with fractures or damaged bones. The foam solidifies into a porous, rigid substance, bonding the bones together until bone cells grow through the material. Over a period of time the body replaces the plastic with natural bone. The foam substance was applied to bone-mending several years ago by Captain Joseph Salvatore, now at the Department of Experimental Surgery, Walter Reed Army Institute of Research, and Dr. Michael Mandarino, at Hahnemann Medical College and Hospital, Philadelphia.

### Advanced Air Defense System

First production units of a new, advanced field air defense system, designed to pinpoint data on approaching enemy planes and feed them to Army missile batteries, have been delivered to Fort Bliss, Texas. Produced by Hughes Aircraft Company, Fullerton, California, it is designated the AN/MSQ-18 by the Army Signal Corps. Five 2½-ton trucks house the system. One is an Operations Central while the others are coder-decoder group trucks. The Central may be manned by a single operator. When employed as part of Missile Monitor, information is provided by the new three-dimensional radar Frescanar which simultaneously computes range, azimuth and altitude, and from other sources. Through use of the MSQ-18 and other electronic links in the Missile Monitor system, time-consuming telephonic reporting and manual plotting of enemy aircraft is eliminated.

### Civil Affairs Terminology

Elimination of the term "Military Government" from U. S. Army terminology has been announced by the Department of the Army. Henceforth all Civil Affairs-Military Government units, offices and functions will be known simply as Civil Affairs.

### Benefit Association for Enlisted Personnel

PATTERNED after a similar and older officers' association, the Armed Forces Enlisted Personnel Benefit Association has enjoyed a steady growth since it was launched in March 1947 by senior enlisted men in the Washington, D. C. area. During the past year membership climbed 40 percent. The Association offers group insurance protection, emergency loans, scholarship grants for children and other welfare assistance to active-duty career servicemen, regardless of rank or length of service.

Principal benefit is the \$10,000 life insurance plan which costs \$9 a month regardless of age, with a modest additional charge for those on hazardous duty. Last year a dividend refund of \$1.50 a month cut the total cost for full coverage to

\$7.50, and with growth during 1958 it is expected that even larger dividends will be provided.

A board of directors, all enlisted men on active duty, contribute their services without compensation. The Association provides insurance coverage much like that provided for two million Government employees and some 35,000 Armed Forces officers. Examined by the Department of Defense, the Association has approval to solicit members throughout the Armed Forces. Allotments also are authorized through finance officers to cover insurance payments. Complete information, including financial report, is available by writing to the Armed Forces Enlisted Personnel Benefit Association, 422 Washington Building, Washington 5, D. C.

## **News of Professional Interest**

### **Improved Mask**

A canisterless mask developed by the Army Chemical Corps has also been adopted by the Marine Corps and the Navy Bureau of Docks as a standard item of issue. Designated the M-17, the mask is designed to afford protection against chemical and biological agents as well as radiological particles. The external canister is eliminated by use of a new lightweight filter material. Deliveries of the new mask are scheduled in 1960.

### **VTOL Plane Under Test**

Successful in-flight transition from vertical to horizontal flight and back to vertical recently was accomplished in tests of a rotatable ducted-fan airplane developed for Army use by the Doak Aircraft Company, Inc., Torrance, California. The Doak 16, titled by the Army as VZ-4DA VTOL, is powered by a single 840-horsepower Lycoming T-53 shaft turbine engine, has overall span of 25½ feet, length of 32 feet, empty weight 2,300 pounds and gross weight of 3,000 pounds.

### **Chemical Corps Officers**

Increased emphasis on radiological warfare has generated need for more Nuclear Effects Engineer Officers in the Army Chemical Corps. College-level training in this area is provided at the Naval Postgraduate School, Monterey, California, where both the bachelor of science and the master of science degrees may be obtained. AR 350-46 contains details on eligibility requirements and application procedures.

### **Northward Ho!**

RESULTS of an 1800-mile trek across the Greenland Ice Cap, part of which led the 41-man expedition to previously unexplored Nyeboes Land, are being studied by scientists of the Corps of Engineers' Snow, Ice and Permafrost Research Establishment (SIPRE), Wilmette, Illinois, the Signal Corps, Quartermaster Corps, and the Transportation Research and Engineering Command.

Starting last May, the expedition known as Operation Lead Dog left Camp Tuto on its way to the shore line of the Lincoln Sea in an attempt to locate a safe overland route from the Ice Cap shelf to

the shore line, and also to chart an overice route to Peary Land. Entirely self-sustained, the party carried all fuel, food, housing and other supplies on sleds towed by D-8 tractors. A new navigation vehicle known as the Polecat also was employed. The expedition halted about every 15 miles to take samples of snow for weight and density study. Quartermaster Corps scientists collected data on environmental and meteorological conditions, while Signal Corps representatives mapped snowdrifts and conducted local observations of upper winds.

### **"Snake Batteries"**

Flexible spool-shaped links of zinc-silver chloride batteries, called electric eels or "snake batteries," have been developed for the Signal Corps to power repeaters. The new batteries, which are activated when immersed in water, were developed by the Chemical Division of Aerojet-General Corporation, Azusa, California. A battery is placed in series with each of the repeaters which are spliced into submarine cables every mile to boost voice or teletypewriter signals. Each battery is five-eighths of an inch in diameter and 30-inches long.

### **S&E Program**

Revisions are being made in the Army program for utilizing soldiers with scientific and engineering training. Previously known as the Scientific and Professional (S&P) Program, and now designated as "Scientific and Engineering Assistants (S&E) Program, the new program will adopt personnel standards related to professional areas such as those used by the Civil Service Commission. Among other objectives, the S&E Program will assure that duty positions clearly require professional level performance and eliminate those that do not; encourage assignment of greater professional responsibilities; reduce frequency of interruption of professional type duties; and provide for local advisory groups to assist commanders in placing and utilizing these soldiers. At present some 3,000 personnel are affected under the existing S&P Program. Details of the new program are spelled out in AR 611-211, AR 611-212 and Department of the Army Circular 611-37.



## Lacrosse Units Equipped

The Lacrosse missile officially entered the Army's family of weapons recently with presentation of missiles, launchers, check-out vans and other components to the 5th Missile Battalion of the 41st Artillery at Fort Sill, Oklahoma. Another Lacrosse missile unit, the 5th Missile Battalion, 42d Artillery, is soon to be equipped. At the same time, another new unit, the 4th Missile Battalion, 28th Artillery, has been formed.

Lacrosse is the Army's surface-to-surface missile intended for close combat support. It is a swept-fin, solid-propellant missile launched from a mobile launcher on a standard 2½-ton truck. It has both atomic and non-atomic capabilities.

## Accounting Course

The special extension course in Accounting previously available from The Finance School only to Department of the Army civilian employees, now has been made available to qualified military personnel. The course consists of six college-level subcourses. Eligibility requirements and enrollment instructions are contained

in Department of the Army Pamphlet 350-60, November 1958.

## Disciplinary Barracks Vacated

Fourth to be vacated since 30 June 1957, the Army Disciplinary Barracks at Lumpoc, California, was recently vacated because of a decline in prison population. This leaves Fort Leavenworth, Kansas, Disciplinary Barracks as the sole remaining one operated by the Army. Population of Army disciplinary barracks has declined some 75 percent in the past three years due to improved personnel selection, retention policies, and fewer courts-martial.

## Parks Range

The U. S. Army's only permanent International Rifle and Pistol Range, located at Fort Benning, Georgia, has been named in honor of the late Lieutenant General Floyd L. Parks. Gen. Parks, who served as Army Chief of Information, and Commanding General, Second U. S. Army, became Executive Director of the National Rifle Association on his retirement.

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## **Marksmanship Badges of Distinction**

A NEW DESIGN with "U. S. Army" identification emblazoned on the bar of badges awarded to U. S. Army members has been adopted for two of the most coveted shooting awards in the country—the Distinguished Marksman Badge and the Distinguished Pistol Shot. Both are awarded by the National Board for the Promotion of Rifle Practice to civilians, and by the Services to members for superior firing performed with the service rifle and pistol, using service ammunition issued on the firing line.

In the past civilian and Army personnel have received identical badges with "U. S." emblazoned on the bar. Now badges awarded to Army members will bear the distinctive "U. S. Army" inscription.

TO ATTAIN either badge, a competitor must place approximately in the top ten percent of all non-Distinguished competitors in high-level Service matches (major command or All-Army Matches) or the National Trophy Matches, on three different occasions. In all, 1,452 Army personnel have won the Distinguished Marksman Badge as of 1 June 1959 and 333 have been awarded the Distinguished Pistol Shot Badge. Only 165 have won both.

# *Request Sufficient Copies*



**Be Sure the Digest  
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See Army Circular 310-72 (18 June 1959) which directs Commanders to request sufficient copies to permit prompt circulation, using DA Form 12-4 (1 April 59), (Requisition for Initial Distribution of Publications and Blank Forms).

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Right of Habeas Corpus—No Excessive Bail.

Right to Trial by Jury—Innocent Till Proved Guilty.

Right to Move About Freely at Home and Abroad.

Right to Own Private Property.

Right to Free Elections and Personal Secret Ballot.

Right to Work in Callings and Localities of Our Choice.

Right to Bargain with Our Employers and Employees.

Right to Go Into Business, Compete, Make a Profit.

Right to Bargain for Goods and Services  
in a Free Market.

Right to Contract About Our Affairs.

Right to the Service of Government as a  
Protector and Referee.

Right to Freedom from Arbitrary Government  
Regulation and Control.

TO MAINTAIN THE AMERICAN WAY OF LIFE AND PASS IT INTACT TO  
SUCCEEDING GENERATIONS IS THE RESPONSIBILITY OF EVERY TRUE AMERICAN

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DETROIT

VALLEY FORGE PATRIOTS' AWARDS  
BY THE FREEDOMS FOUNDATION AT VALLEY FORGE

for letters by active duty members of the  
U. S. Armed Forces on the theme

MY JOB: PROTECTING AMERICA'S FREEDOMS"

For details, see page 59



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